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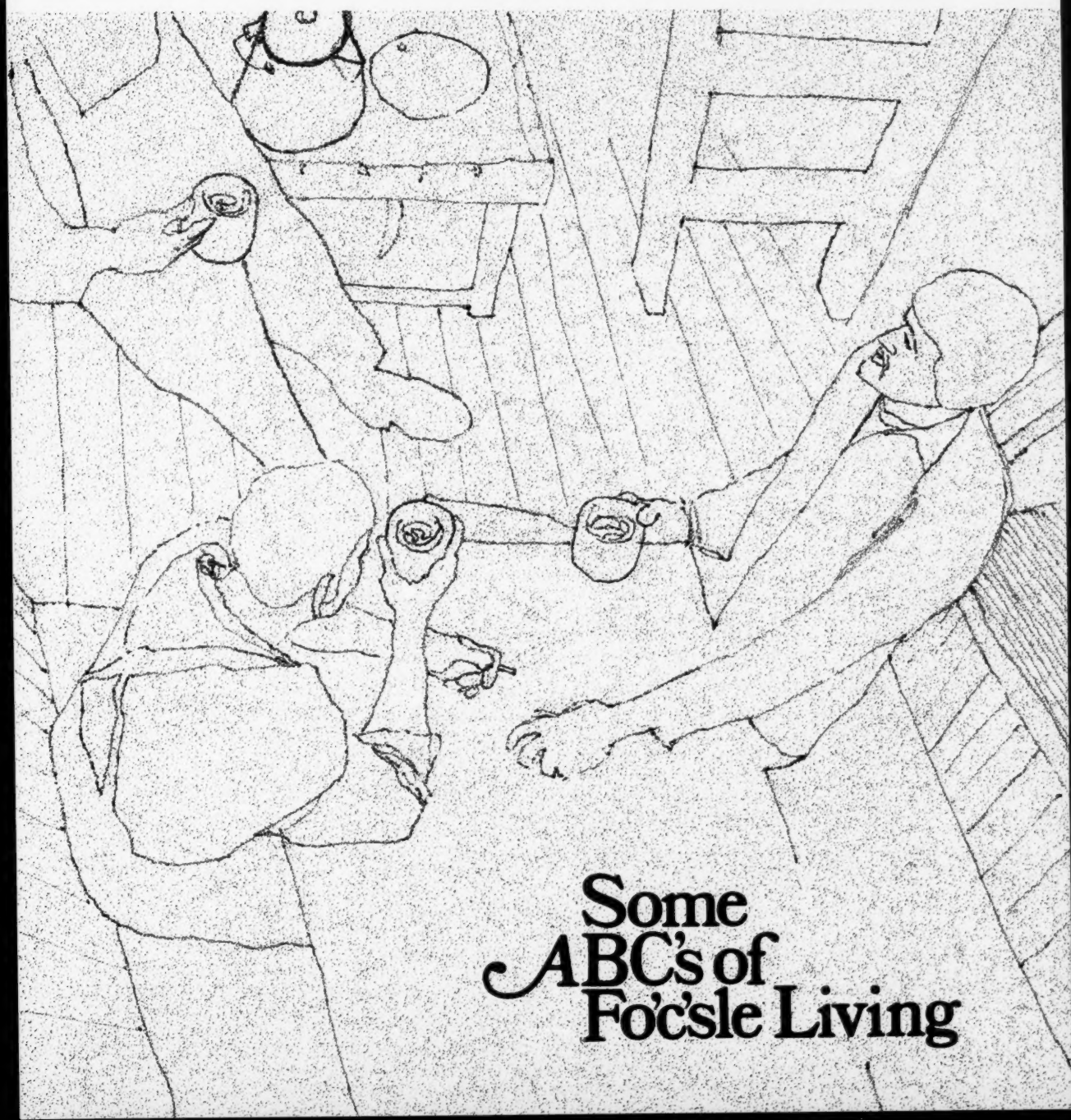

Some ABC's of Fo'c'sle Living

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, Secretary

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Robert M. White, Administrator

National Marine Fisheries Service
Robert W. Schoning, Director

Address correspondence to: Marine Fisheries Review, NMFS Scientific Publications Staff, Room 450, 1107 N.E. 45th St., Seattle, WA 98105.

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Managing Editor: Willis L. Hobart

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CONTENTS

Article

1 Some ABC's of Fo'c'sle Living, A. K. Larssen and Sig Jaeger

2 Want to Be a Fisherman?

4 Living in the Fo'c'sle

8 Glossary

14 Your Outfit

17 On Duty in the Pilothouse

21 Working on Deck

26 Responsibilities

28 The Hold

30 Your Medical Rights and Care

32 Bits and Pieces

35 How Do You Get Paid?

36 Shore Leave

37 Conclusion

Departments

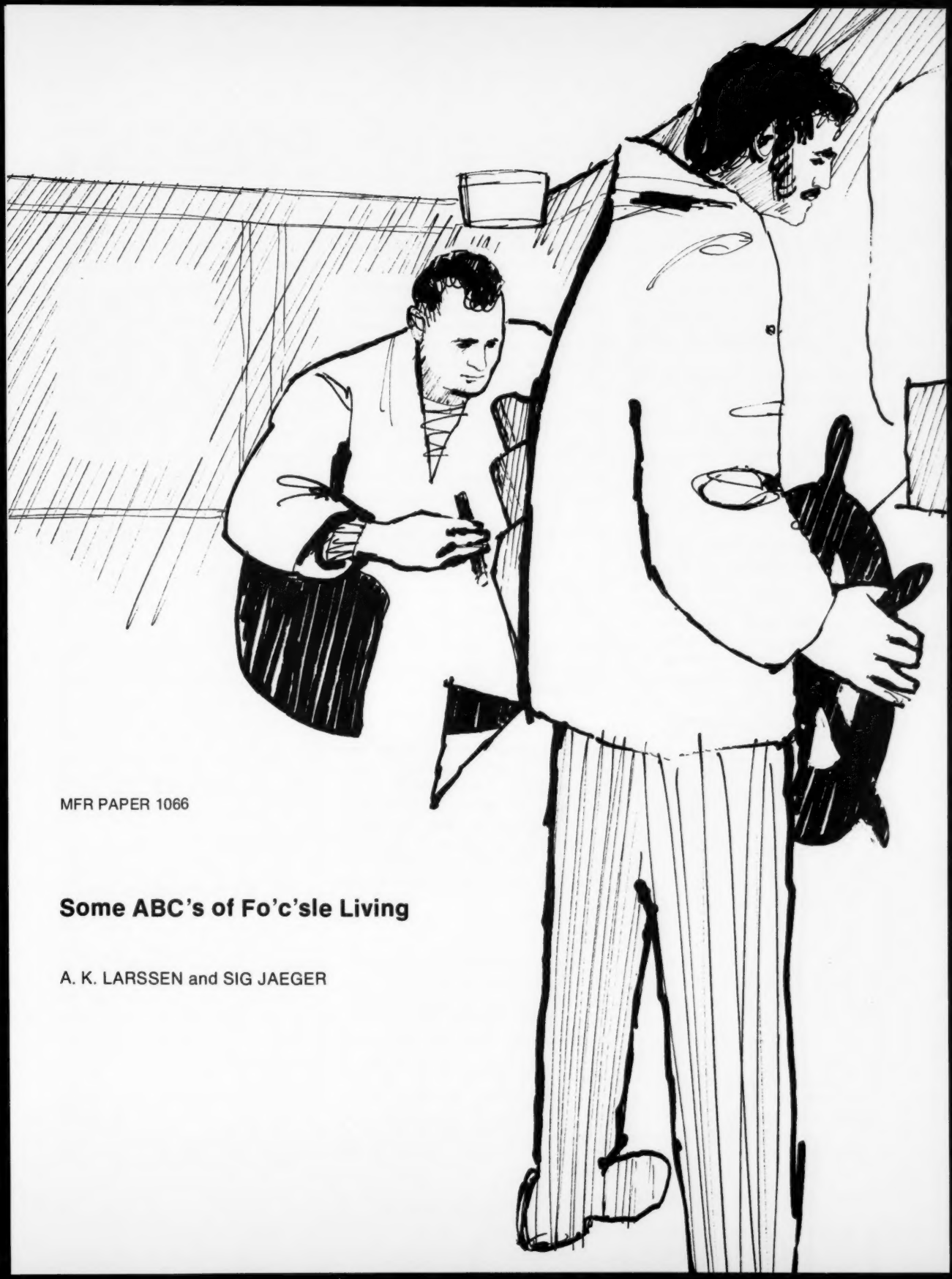
39 NOAA/NMFS Developments

42 Foreign Fishery Developments

45 Fishery Notes

45 Publications

48 Editor's Comments



MFR PAPER 1066

Some ABC's of Fo'c'sle Living

A. K. LARSSEN and SIG JAEGER

Want to Be a Fisherman?

So you want to be a commercial fisherman. Or you think you do. Before you make up your mind it might be well to do a bit of checking to see how much you know about the trade you are thinking of making your own.

Commercial fishing is very old. No one knows just how old, but we do know that a fellow named Simon, known locally as "The Big Fisherman," and later in life and in other parts of the world as Saint Peter, the "Rock," operated fishing boats and nets on the Sea of Galilee some 2,000 years ago.

Yes, commercial fishing has been going on for a long time. Still, you may not be too sure of what the terms "commercial fishing" and "commercial fisherman" really mean in everyday language. Stated as briefly as possible, a commercial fisherman is a man who goes to sea and catches fish which he sells to a wholesale fish buyer, who in turn sells it to a retail fish dealer, who in his turn sells it to the person who wants to eat it.

Chances are that you have heard or read stories about the "wild and free and wonderful" life at sea. Maybe you have heard or read stories from bygone days about the romance of deepwater fishing, of wrestling a living from the sea, and other stories played in the same key. Or perhaps you smelled "romance" in the story about the dory fighting its way through choppy seas in a blinding snowstorm, its crew of two straining their eyes to the utmost through the whirling snow for a glimpse of their schooner, and safety. Romance? The men who pulled the heavy oaken oar while craning their heads and staring into the snowstorm would have another name for it.

Romance is many things to many people. You would do well to forget the romance bit the moment you start packing your seabag for your first trip to the fishing grounds.

Perhaps you have heard or read tall stories about the money being made in commercial fisheries. Rest assured that such stories are mostly true. Big money has been earned, is being earned, and will continue to be earned by commercial fishermen. Trouble is that this big money isn't being passed along to all the participants. Some fishermen do earn big incomes. Others earn barely enough for a skimpy living because they are the unlucky ones, the unfit ones, victims of a short fishing season. They earn only a part of a living wage and must seek the balance elsewhere. Some may have to accept public help like unemployment compensation. The fisherman's income is pretty much like the sea from which it is drawn: it ebbs and it floods like the tide, but not with tidal regularity, mind you!

One fellow earned just a few coins short of 1,100 bucks inside a 20-hour workday. This same man, on another occasion, spent 3 weeks—21 solid days—fighting strong winds and currents, snowstorms, ice-covered docks, snarls on the gear, and more. As payment for his labors and miseries, he received a paycheck for three (3) cents—three small pieces of copper for 3 weeks' hard work. So you see, it does flood, but there is an ebb, too.

Commercial fishing is a rather complex business, and the status of a commercial fisherman is equally complex. He is a working man who performs backbreakingly hard work for unnaturally long hours. But he is also a man who pools his time, strength, skill, and a certain amount of money with his fellows in order to fit-out a vessel, then goes to sea in search of fish which he hopes to sell for a profit. The cost of outfitting a fishing vessel for deepwater fishing is high, and each fisherman is responsible for some share of that cost. Thus a fisherman risks not only his time and his work but also a certain amount of cold cash each time he goes to sea in quest of fish. He is a businessman as well as a working man.

The fisherman is on nobody's payroll and will not be handed a paycheck or pay envelope each Friday at quitting time. His earnings are derived directly and proportionately from his catch of fish and the price obtained for same. The settlement at the end of the trip may bring him a large paycheck, a small one, or none at all. He may, indeed, get a bill for his share of the outfit instead of a check. That is called "going in the hole," or "getting a hole-bill." This does not happen very often, but it does happen.

A fisherman's workday can be a long one by anybody's standards. An 8-hour workday for some commercial fishermen cannot even be a dream; it is perhaps an impossibility. The fisherman can figure on being on deck from 12 to 18 hours between each time he puts on and removes oilskins and boots; there will be occasions when his watch on deck may be even longer. If the deepwater fisherman manages to sleep 3 to 4 hours out of the 24, he may be doing well enough, all things considered.

A fisherman's "home" for the better part of each year is a small, crowded fo'c'sle shared with several other men. He knows but little of the home life that shorebound men know and love. It has happened that a fisherman has been so frequently and so long away from home that his youngest offspring have forgotten what he looks like, and may only uncertainly accept him as a member of the family when he finally returns to home port. But length of trips vary from a day or so to months, depending on the fishery.

Well, there you have a rough sketch of what the life of a commercial fisherman is like: hard and dangerous

work; long working hours; uncertain and highly variable income; spartan, crowded living quarters; long absences from home. Still, the deepwater fisherman goes fishing. Why?

Perhaps Johan Bojer, in his book, *The Last of the Vikings*, gives some answer. He wrote, "and in the winter (they) sailed hundreds of miles in open boats up to Lofoten, perhaps tempted by hope of gain, but too because on the sea they were free men."

It is a possible answer: *free men*. Independent men. Indeed the fisherman is usually a fiercely independent cuss taking great pride in his independence. He receives no wages. He has no "boss" in a true sense of the word. He has a skipper, yes, but the skipper is his leader, his commanding officer. But he is not a boss in the way a factory owner or manager is the boss of his workers.

The skipper is himself a fisherman, the top fisherman on board and leader of his gang, or crew, because it is his knowledge and skill and judgment combined that, in large measure, determine whether a payload of fish comes on board, and determine the success or failure of the fishing trip or fishing season. To the very best of his ability, the skipper "runs" the vessel and the crew toward that end. So he is the boss in the sense of being the leader. He knows what should be done, and when, and gives orders to that effect. Most important, his orders must be obeyed without question. A competent fisherman may (silently) disagree with a skipper's decision, but he would not refuse to obey an order.

A skipper may fire a fisherman for good and sufficient reason. The fisherman, on the other hand, may pack his seabag and step ashore at the end of a trip for any reason he may think of, or for no reason at all that he would care to voice.

See why the deepwater fisherman cherishes his status as an independent fellow and why men become deepwater fishermen? If you stay with the fishing industry, you will find within it your own other reasons (or rationalizations) for remaining. These may include the variety of the work, the odds against which you pit your skill and endurance, and the pride of a successful hunt. Adventures, yes. But adventures generally arise from ignorance or miscalculation. With experience, they will be fewer in number, and probably will be reclassified in your mind as hardships.

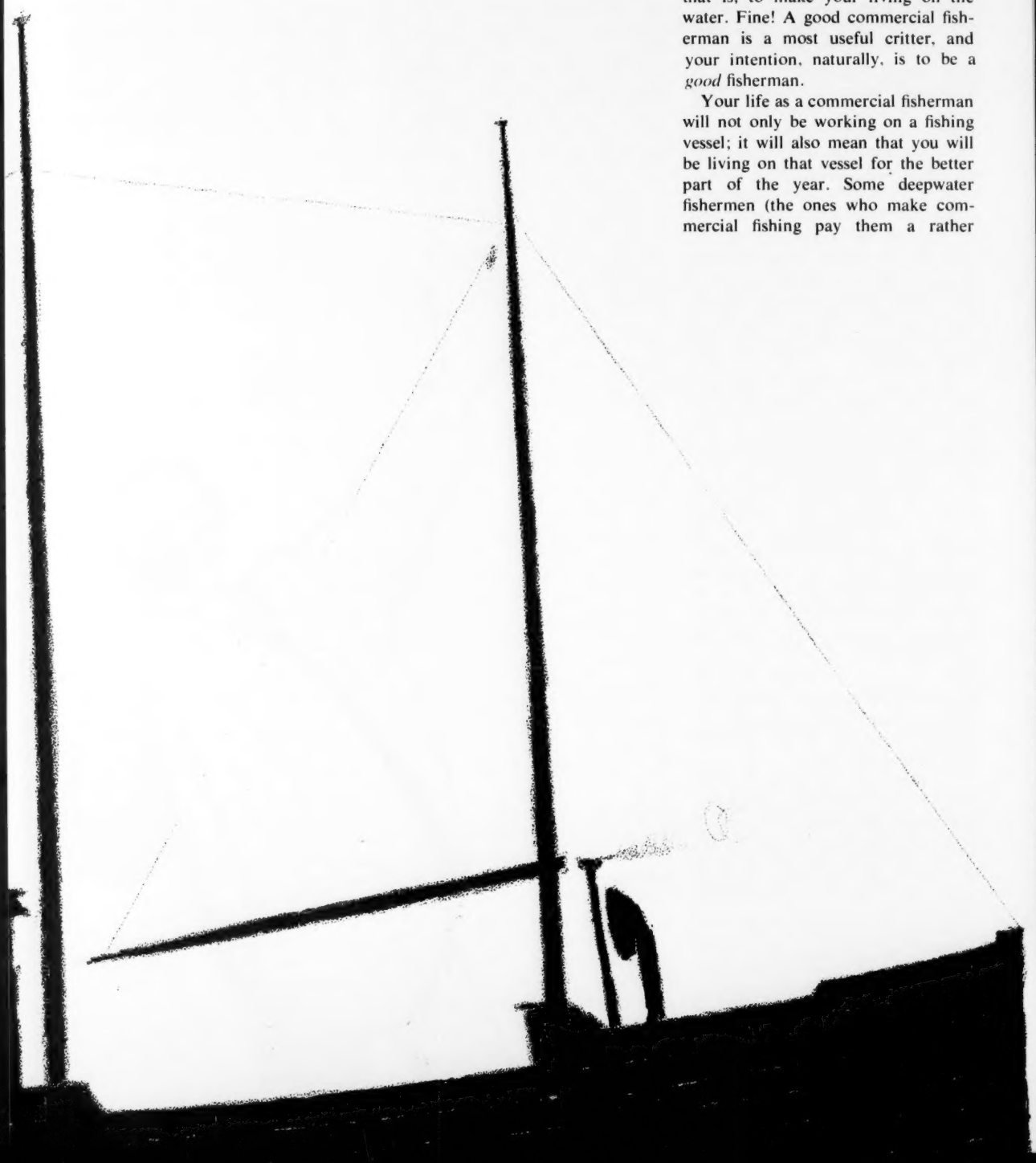
All right. So you still believe you would like to become a commercial fisherman. Read on then, about some of the usages he follows, his life-style, and his values. Some parts herein are repeated and rephrased for reasons you will come to understand.

After a season or two of fishing, rereading this should be a bore because you have absorbed it. But if these tips, a mixture of objective facts and subjective reactions, ease you into "the club" with a little less friction and with fewer personal problems, then they will have served their purpose.

Living in the Fo'c'sle

You have made up your mind to become a commercial fisherman—that is, to make your living on the water. Fine! A good commercial fisherman is a most useful critter, and your intention, naturally, is to be a *good* fisherman.

Your life as a commercial fisherman will not only be working on a fishing vessel; it will also mean that you will be living on that vessel for the better part of the year. Some deepwater fishermen (the ones who make commercial fishing pay them a rather



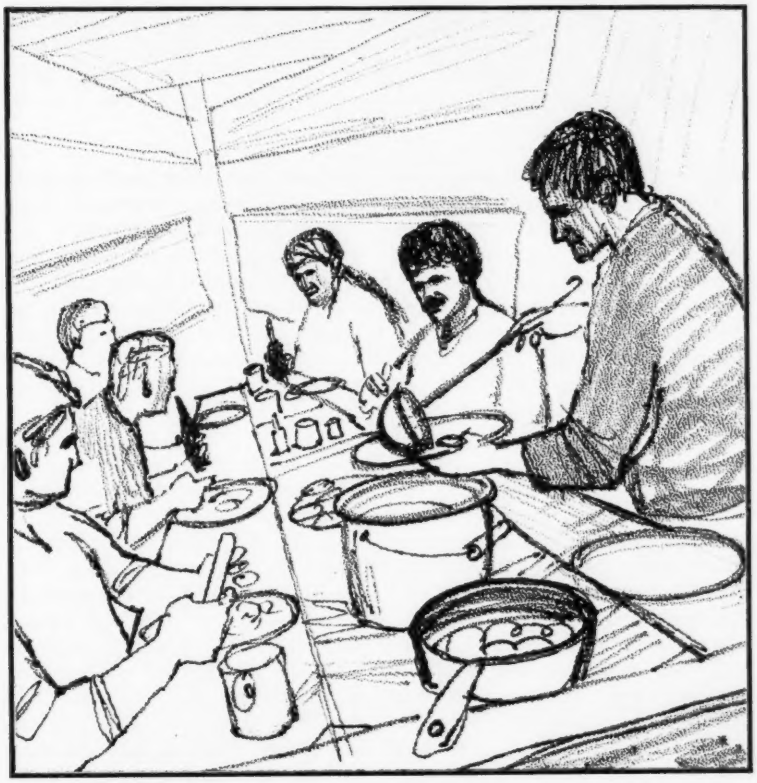
high income) may spend up to 250 or more days of the year at sea. In addition, a good many days are spent on the dock or on the deck mending and building the fishing gear used while at sea.

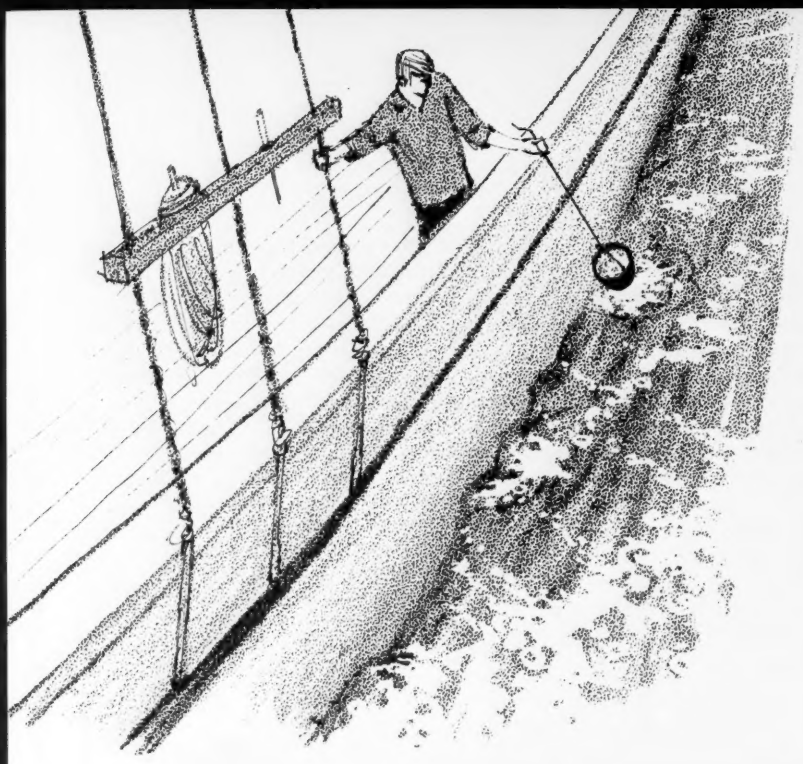
On board the fishing vessel, the fo'c'sle will be your home—living room, bedroom, basement, and in many cases your kitchen and dining room as well. By the way, "fo'c'sle" is old sailor slang for "forecastle," that low, dark, and wet hole beneath the forecastle head (fo'c'sle-head) which once served as a sailor's "home away from home" on board old sailing ships.

The fo'c'sle on board the modern fishing vessel is a good many notches above that of the old windjammers. Your fo'c'sle will be warm, dry, well lighted, and as clean and cozy as you, the inhabitant, want it to be.

Many, and probably most fishing boats at this writing, have living quarters in an upper deckhouse. The sleeping quarters are generally separate from the galley. The modern, king crab-type vessels have two-bunk staterooms with such amenities as an intercom, desk, and sink in each stateroom. There is an increasing range in the variety and quality of crew quarters, especially when comparing the larger vessels, both old and new, and the smaller ones.

Living in the fo'c'sle of a fishing boat is in so many ways quite different from living in a house or an apartment ashore. Clearly, if you intend to go into this kind of life you must learn its do's and don'ts; you have to adapt to the particular kind





of living needed to survive and prosper.

There are, in fact, quite a few procedures you must learn; some of the usages mentioned here may seem small or petty to you right now. Right you are! They are small and petty, taken one by one. In the aggregate, however, they amount to this: if you follow these usages, you will become a dependable and pleasant shipmate, esteemed and respected by your fellows, and your life in the fo'c'sle will be a pleasant and rewarding experience. If not followed, you will be an undesirable shipmate, one who is somewhat less than beloved both in the fo'c'sle and on deck. Your own happiness on board will be . . . well, you can figure that one out for yourself. Thus, it is in the best interest of everyone that budding fishermen learn the rules and live by them.

1. Safety first, always. The very first thing you must learn is to keep yourself inside the railings of your vessel. While under way, don't try to use the railing for an easychair or a sofa. Do not sit, lie down, or walk on the railing!

2. Need a bucketful of clean seawater? Don't wrap the drawbucket lanyard around your hand! And, don't drop the bucket overboard before your other hand has secured a good grip in a shroud, a guyline, or some other dependable anchor. In short, stay inside the railings. If the ugly scream of "man overboard" is ever heard on board your vessel, let it not be you they are screaming about.

3. Don't climb shrouds, stays, or guylines. Keep out of the rigging entirely, unless ordered up by the skipper for a valid reason, perhaps to replace a burnt-out lightbulb.

4. In the fo'c'sle, your bunk and locker are your only private territory; the rest of the fo'c'sle must be shared equally with your shipmates. Equally means just that: that all inhabitants are equal and that no one may use, or demand to use, more space than the next. That again means you may not throw your clothes and other personal belongings wherever you like. Somewhere in the neighborhood of your bunk you will have a clothes hook, perhaps even two, that is your very own. That is where your clothes must be placed when undressing for the bunk or changing into your going-ashore clothes. Keep in mind that the clothes hanging from a hook on the bulkhead or in a clothes locker must be secured so they do not swing as the boat rolls, which it does rather constantly. More than one coat or shirt has been worn threadbare early in its life from rubbing against the bulkhead.

5. Your clean, spare clothes belong in your locker, as do your toilet articles, reading/writing matter, cigarettes, gum, candy, and whatever small personal items you may pack along. Your personal possessions should also include identification, especially a naturalization or birth certificate as proof of citizenship. This proof is necessary if you re-enter the United States from a foreign port like Canada, although this requirement may be irregularly enforced. Birth certificates can be photocopied in a handy wallet size, plasticized for a dollar or two, and the original kept home in a safe place. For naturalization certificates, which may not be photocopied, get a U.S. citizenship identification card from the immigration station nearest you.

6. A man's locker is his most private territory on board. Never go into a shipmate's locker to "borrow" a pack of cigarettes or a pair of gloves or anything at all without first securing his permission to do so.

7. Keep your fo'c'sle clean. In a good crew, everyone takes his turn to wash the floor, the benches, the table, and the companionway. Wipe out the wash basin. Spruce up the stove. Keep things in good order. On the run, or while weatherbound in harbor, bedding should occasionally be brought on deck and given a good airing, weather permitting.

8. The ship's toilet (called the head, by some) is also a part of your living quarters and must be treated as such. Keep your toilet clean.

9. Be aware that the method of flushing your toilet on board a fishing vessel may be quite different from the one you are used to ashore. On some fishing boats there is an electrically driven pump furnishing the water for

flushing, but on many others, especially the older boats, the flushing water may be nothing more than a part of the engine's raw water piped through the toilet bowl. This means that there is no flushing water except when the main engine is running. There is a draw bucket, though, for use whenever the main engine is not running. Be sure to use that bucket! And to save someone else embarrassment, delay, and a frayed temper, if you use the last of that roll of necessary paper, *you* replace it.

10. Keep yourself and your clothing as clean as work and conditions will allow. Fish can be pretty smelly critters and that's all right for a fish. But there is no good reason why a fisherman should smell like a fish! Many of the modern fishing vessels in the king crab fishery have automatic washing machines and clothes dryers on board. With such labor-savers close at hand, and free, a fisherman has no excuse for going 'round in dirty clothes smelling like a spoiled fish. Keeping your own carcass clean at sea is also becoming less and less a problem as more and more new fishing vessels install shower stalls on board. Even so, use no more water than necessary.

11. Because of the long irregular hours and the hurry to get to bed, many fishermen tend to forget the regular habits of cleanliness. Most noticeable among such personal matters is neglect of the teeth. An old jam jar is a good container in which to keep tooth brush and toothpaste. Take a jar full of water out on deck for at least one daily brushing. For face and arms a wash cloth does a better scrub job than the hands-only process.

On board the older and the smaller fishing boats especially, the freshwater tank is all too often pitifully small, and the supply of fresh water is not adequate according to shoreside standards. Nothing much can be done about that except learn to live with it. That is, learn to use fresh water with great care.

On such a boat, the green man does well to follow the practices of the rest of the crew. Or ask the cook. He is usually the one who will get bawled out by the skipper if the freshwater tank runs dry before the trip is finished. Even so, there is an abundance of clean seawater close at hand, though it is not just as good, no. Still and all, fishblood, slime, and gurry can be removed effectively by washing in clean seawater. Ergo, there is no need to go into the galley or the fo'c'sle, or into your bunk, without first having removed some 99 percent of the blood and slime and gurry from your hands, arms, and face. When you are on a long trip and far from home, and have several days running time ahead of you, a seawater sponge bath helps before you put on a clean union suit when you start for home. Your homeward run will be more pleasant for yourself and for your shipmates as well.

On some fishing vessels, especially the halibut schooners and some of the older seine-boat types, the galley is located in the fo'c'sle. In such a fo'c'sle, where your bunk will be only a few feet removed from the stove, extra neatness and cleanliness (not to mention tact) are of the utmost importance.

The cook on a fishing vessel, especially on a smaller one where the cook must also work on deck, is not "living the life of Riley." He has a man-size job on his hands and deserves your consideration and help as your own work permits. Here are a few examples of what you may do to help: carry the slop bucket on deck for emptying, washing, and scrubbing;

Glossary

Belay: To secure or make fast a line. Infrequently used in the fishing industry.

Belaying pin: A pin about a foot or more in length, set in the shrouds onto which running rigging is hung or belayed in coils.

Bilge: Area next to keel, under the engine or in the fishhold where waste water and oil accumulates. Some bilges have a sump at their lowest point from which the bilge pump draws when pumping out the bilges. (See *Sump.*)

Bilge pump: Centrifugal or displacement type pumps used to pump the various bilges dry at regular intervals. Most such waste water is pumped overboard, although environmental regulations now prohibit discharge of oils.

Bilge alarms: An alarm system that, through floats and sensors in the bilge, informs the skipper or engineer when bilge water should be pumped out. Alarm may be both sonic and visual, combining bell, horn, or siren with flashing or continuous lights or lights that change color.

Boat puller: The crewman on a salmon or albacore troller.

Boat share: See *Share system.*

Block: A wood or metal frame containing one or more sheaves (pulleys) over which running rigging (lines) are rove (pulled over). Blocks may be secured with a hook or shackle to masts, booms, or shrouds, in order to increase the leverage to hoist heavy equipment, fishing gear, booms, etc. Single blocks have one sheave; double blocks two sheaves, etc. The more sheaves in a block, the more leverage is secured.

Bumper: Landlubberish term for fender. (See *Fender.*)

Buoy lines: Lines which lead from the fishing gear to surface floats.

Chance: A job, or a commitment for a job on a fishing boat. Northwest fishermen look for a *chance*; Northeast coast fishermen look for a *site.*

Chief: The engineer. The man responsible for care of engines and deck machinery.

Cleat: Usually a T-shaped form fastened to the deck, mast or rail, to which lines are secured. A deck cleat is fastened to the deck, distinguishing it from a mast cleat or rail cleat.

Companionway: Passage from the weather deck to lower deck spaces, such as the fo'c'sle or the engine room.

Cork line: The top line of a floating net to which floats are secured. Corresponds to the headrope of a bottom trawl.

Crew expenses: Those expenses of the trip which, in the share system, are charged to the crew only. (See *Share system.*)

Crew share: That amount of the gross stock which belongs to the crew according to the share system used. Also called the lay. (See *Lay* and *Share system.*)

Crossing: The transverse division in the fishhold, extending from one side of the hull to the other.

Delegate: A crewman elected by his shipmates to be their spokesman and to represent their interests when settlements are made. His function is similar to that of the shop steward ashore.

Drawbucket: A bucket with a lanyard knotted or spliced to the handle, or bail, and used on deck for taking up seawater.

Expenses: Costs of the trip, such as fuel, groceries (grub), ice, bait, lost or condemned gear, filters, etc. In different fisheries expenses are variously classified as gross stock expenses, boat expenses, and crew expenses. (See *Share system.*)

Fairlead: Usually a single sheave block or wheel around which a line is passed so that it may lead fair to the next point, i.e., a line hauled from overside may come up to a fairlead at the rail, turn 90° vertically there and cross the deck to another fairlead, where a 90° horizontal turn is made to lead the line into a winch drum.

Fender: Used to prevent the hull of the boat from rubbing against a piling, float, or another boat. Some fenders may be air bags, old tires, wood battens, which are hung overside from the rail to fend away from the piling, float, or boat. Another type of fender built onto the boat. is called a guard. Fender pilings of course describe their function. (See *Guards.*)

Fending off: Pushing on boat or dock to keep the boat from bumping.

Fo'c'sle: Contraction of forecastle. Living quarters, located in the bow of the boat. Living quarters in the stern are usually termed the *cabin.*

Footrope: Bottom line on a trawl; corresponds to the leadline on a seine.

Galley: A vessel's kitchen. May be combined on older and smaller fishing boats with the sleeping quarters and located in the fo'c'sle, the cabin, or in a deck house.

Gear: Implements used for catching fish or a general term for any auxiliary equipment used on deck.

Going-in-the-Hole: Having to pay the trip's bills out-of-pocket because income from the trip was insufficient to pay expenses. (See *Hole bill.*)

Grossing or **Gross Stock**: Total amount of money earned by the boat and crew from the fish or other services.

Gross stock expenses: Bills levied against the total dollars earned. (See *Share system.*)

Gurry: Combination of fish slime, blood, and visceral fluids that spill while dressing fish. Also the "soup" sometimes found in fishhold bilges—a combination of water and fish wastes described.

Guards: Fenders built onto the hull of the boat. Heavy timbers or pipes attached to the hull to prevent chafing against the dock or another vessel.

Gypsyhead: A metal drum with a smooth concave surface, usually mounted on a winch. Several wraps of line around the gypsy provides enough friction while it is turning to raise heavy loads smoothly because the line slips and is easily controlled like the friction on a clutch plate.

Halyard: Also *halliard.* A line running through a block or eye for hoisting sails, flags, etc. (See *Lanyard.*)

Hanging: 1. To fasten or sew lines onto web, nets. The nets hang from the cork line. 2. The *hangings*: the distance apart, which can be measured in inches or number of meshes.

Head: The toilet on board a ship. On fishing boats it is usually referred to as the toilet.

Headrope: Top line on a trawl that roughly corresponds to the cork line on a purse seine, except that the floats are metal, plastic, or even glass, and heavily built to withstand the great pressures of deep water. The floats hold the mouth of a trawl open (vertically) so it catches fish as it is towed.

Hole bill: This is the bill, or deficit, when gross earnings for a trip are less than the total expenses.

Home run: The journey from the fishing grounds to the home port.

Iron Mike: Term generally used when referring to the auto-pilot, an electrical device that automatically steers a vessel on a given course.

Kink: 1. A sharp bend in a line or cable, usually caused by the line being improperly coiled. 2. A short nap.

Knot: 1. A configuration of a line when it is tied into another line or into itself. 2. An expression of a vessel's speed (not distance). A nautical mile is 6,080 feet, and, a vessel traveling 10 nautical miles in one hour is proceeding at the rate of 10 knots.

Lanyard: A short length of light line used to fasten down equipment, or used as a handle extension, i.e., tied to a bucket bail or a bell clapper. (See *Halyard.*)

Lay: 1. A more formal term used for the *share system.* (See *Share system.*) 2. The lay of a line is the system of reverse twisting of fibers to form twines, then strands and finally a rope or line. A line with a lay to it tends to kink more easily than a line that is braided, though each has its own special application.

Lead line: Bottom line of a purse seine or gill net which is weighted either with lead sinkers or with internal lead threads.

Lee tack: A slang expression from sailing days to describe the walking progress of a man with several too many drinks.

Line puller or **hauler**: Usually a mechanically driven wheel or sheave with a sharp V-groove in the edge, which holds the line by friction as it is hauled. A longlining gurdy and a crab pot hauler both use this method of hauling lines. Others may use winch drums for primary hauling power.

Longliner: Common term used to describe a fishing boat (or a member of its crew) which uses longlines to catch fish. Such lines are very long, with branch lines attached which have baited hooks for catching fish. Longlines may be weighted and sink to the bottom to catch such fish as halibut or black cod, or float on or near the surface to catch tuna or swordfish.

Masthead: Top of the mast. Also used to describe the light on the upper part of the mast; the masthead light is on the forward upper part of the mast, while

the range light is at the very top of the mast, and at some distance aft from the masthead light, and indicates the direction of movement of a vessel at night.

Mug-up: A between-meal snack; a cup of coffee and a sandwich.

Net stock: The balance left when a billing expense has been taken from one of the stocks of money as described in the share system. (See *Share system.*)

Pen boards: Removable wood or metal dividers which fit into vertical slots, formed by cleats, and separate the fish hold into compartments or pens.

Penned up: When all pen boards are in place.

R.D.F.: Initials for Radio Direction Finder. Through the loop receiver, the direction from which radio transmissions arrive can be accurately determined. The resultant bearing or bearings thus help fix the receiving vessel's position, or that of the transmitting vessel in relation to each other.

Rig: Common term used in reference to the whole fishing boat itself or to the type or kind of gear aboard.

Rigging: 1. As a noun, the stays, shrouds, and other cables and parts forming the upper works of a vessel attached to the booms and the mast. 2. As a verb, the assembling or putting together of the fishing gear for the boat.

Run: Equivalent to east coast term *steaming*, i.e., a day's run, or the home run.

Running rigging: Running rigging is rove through blocks or sheaves, and used to lift gear or adjust the position of booms. Antonym: *fixed rigging*, or *standing rigging*, such as shrouds and stays.

Running sea: Swells, waves, or breakers built up by a wind of some magnitude and persistence. Also, a sea running.

Settling up: The process of totaling the bills and computing the shares of profit or loss for a trip or trips. The resulting balance sheet is the settlement which apportions the share to each man and the vessel according to the agreed formula. Generally called the share system, but often referred to as the *lay* by economists.

Settlement: The balance sheet resulting from settling up. (See *Settling up.*)

Shaft alley: A tunnel built around the propeller shaft from the engine room to the stern bearing on large vessels and large enough for a man to enter for servicing the bearings.

Shaft box: A box built around the propeller shaft from the engine room bulkhead through the fish hold to the stern bearing. The shaft box is large enough to accommodate the shaft and the bearings only, and in the case of vessels with live-holding tanks, the shaft box will be sealed water tight. Boats with main engines in the stern do not generally need shaft boxes because the propeller shaft (or tail shaft) enters the stern tube directly from the engine room without passing through a fish hold.

Share system: Sometimes called the *lay*. As an historical profit sharing scheme, this possibly goes back to the beginning of fishing by man. Today there are as many different share systems as there are fisheries, and the formula may vary within a particular fishery from boat to boat, as well as in equitability to the partners in the system. Basically, the total income from the vessel and crew's efforts is the *gross stock* or the *grossing*—the total number of dollars from sale of fish.

A *gross stock* expense is deducted from the initial stock, if this is part of the formula.

A *boat expense* is that cost which is deducted from the *boat share* according to agreement.

A *crew expense* is that cost which is deducted from the *crew share* according to agreement.

After the foregoing expenses are deducted from the respective shares, a *net stock* is left which finally ends up in the pocket of the boat owner and each crew member respectively.

Sheave: 1. The wheel or pulley inside a block, around which the line is rove. 2. In the case of large blocks designed for steel cables, the whole structure may be referred to as a sheave.

Shelf: A heavy, wide timber used to stiffen the sides of a wooden vessel. It is located under the edge of the main deck near the top of the ribs. The shelf runs most of the length of the vessel along each side. In the fish hold, there may be doors or ventilated openings between the shelf and deck planking, permitting air circulation between the inside and outside wooden planks, preventing dry rot.

Shrouds: Wire ropes or cable fastened to the hull and extending to near the mast top, and kept taut with turnbuckles. The shrouds keep the mast transversely braced so that it may remain upright and bear loads for lifting. (See *Stay.*)

Side pens: Compartments formed on each side of the fishhold when the fishhold is penned up. Sometimes called *wing pens.* In cross section they are roughly the shape of a quarter circle, the rounded portion being the turn or curve of the bilge.

Site: A job or commitment for a job on a fishing boat (East coast usage). (See *Chance.*)

Skin: Planking, both inside and outside the ribs of heavily built wooden fishing boats. These are the "outside" or "inside" skin.

Slaughterhouse: Square hold compartments along the fishing boat's center line, over the keel area between the port and starboard side pens.

Slop bucket: A bucket (or can) for galley wastes.

Sou'wester: A wide brimmed, watertight oil hat for foul weather wear.

Spring lines: Tieup (mooring) lines used in addition to the bow and stern lines at a dock, float, or alongside another vessel. The spring lines extend from the boat to the dock nearly parallel with the vessel and prevent her surging fore and aft in a strong wind or tide. A spring line running aft from the bow will prevent surging forward and vice versa.

Standing rigging: Cables or lines used as fixed stays or shrouds to hold masts in position. Tension is usually maintained with turnbuckles.

Stay: Wire cable or other line running fore and aft from near the mast top, bracing it longitudinally of the vessel.

Sump: Lowest point in the bilge to which all water and oil drains. With the suction end of the bilge pump pipe located there it can remove the maximum amount of water. (See *Bilge.*)

Tackle: A line rove through two blocks for extra leverage to lift heavy loads. (See *Whip.*)

Taper: The angle of cut across web that is tangential to the meshes in a line. If a line were drawn across a chess board from one corner to the other, it would form a taper to the squares (or meshes). The angles of a taper are described by a formula, so that each section of mesh when sewed together, will form an accurately proportioned cone, for example, as in a bottom trawl.

Trawl: A cone-shaped net, with floats on the head rope and chain or steel cable in the foot rope, which is towed through midwater or on the sea bottom to catch fish. The trawl may be held open by a long beam (beam trawl) or by otter doors (otter trawl).

Trip: 1. Refers to the total fish aboard, or the fishing trip itself. 2. To *trip* a line: to suddenly dump a load by releasing a trigger, as in the end of a trawl when dumping the fish aboard.

Turnbuckle: A metal device used to tighten rigging. Consists of three parts: the middle (barrel) of the turnbuckle is threaded inside at each end; the two outside-threaded rods are inserted at each end, and as the barrel is turned, the rods move toward each other inside the barrel. The other ends of the rods are shackled to a stay or shroud and to the hull, so that the movement serves to tighten (or loosen) rigging tension as needed.

Underway: Vessel in forward motion, running, steaming.

Warps: The cables that lead from the winches on a trawler to each side of the trawl and transmit the towing power from boat to trawl.

Whip: A kind of tackle used for lifting with only one block which, therefore, does not give extra leverage. A whip rove through a single block overhead lifts a weight only equal to the initial pull.

Wing pens: (See *Side pens.*)

Wristlets: A cloth tube worn on the arms by some fishermen usually extending from the elbow down over the wrists, with the lower end having a thumb loop to hold it in place. Upper end is usually fastened with safety pins to the cutoff shirt-sleeves. Wristlets (or wristers) keep lower arms warm. Fish slime and blood are more easily washed out of the wristlets than the arms of the shirt. Other fishermen wear gauntlets of oilcloth or plastic, extending from above the elbow to the wrist, with each end of the tube having a rubber cord inside to hold it snugly on the arm.

take rubber mats or other fo'c'sle floor coverings on deck, wash and scrub them, and hang them up to dry; help wash the dishes; and dress and trim the fish the cook wants to bake for dinner. Otherwise, stay out of the way when he is cooking.

The "mug-up" is a between-meal occasion when massive sandwiches are sometimes built from a variety of meats, sausages, and other goodies that are always available in good quantity and quality on most fishing boats. But this can also be the source of problems for a "greenhorn" (or in-breaker) the first time he goes on a trip.

After that "mug-up," be sure to wash and put away your cup and your knife or whatever tools you may have used. That also means replacing the lid on that jam jar and putting it back in its place, unless there is satisfaction in getting chewed out by a savage cook because the jar rolls off the table and spills when the boat heaves. It is uncanny how quickly a man learns not to leave a cup or jar unattended on the table when he cleans up the mess himself. It is not an easy habit to acquire, when your life has, to date, been spent ashore where the coffee cup stays in place no matter where you set it down.

Even seasoned fishermen, after some months ashore, when suddenly restricted to a small boat with several days of running time to the fishing grounds, get constipated. This can be painful, and even a source of seasickness. The best preventative: eat lightly and don't neglect roughage like fruit and vegetables. Get out of that bunk or off the bench in the galley, and if the weather is so tough you can't pace the deck, do a few bending exercises to get things moving.

The bunk on a long run can be a sleep trap, especially if you are bored. But sometimes in bad weather this is the only alternative besides standing a wheel watch. Even reading is difficult and seems to induce more sleep even after a 10-hour nap.

Courtesy is a very inexpensive commodity, so be courteous! It costs not a penny to say "thank you" when the cook performs some small service for you, or "would you please" when you ask him to perform such a service.

The source of hot water for that shave (if you don't have a battery-operated shaver) may not be a self-replenishing tank, but a large kettle on the stove. Use what you need, but replace the water you've used as a courtesy to the cook and your shipmates who will want hot water next.

On the run to and from the fishing grounds, or when anchored up in a harbor, most of the crew will be in the fo'c'sle most of the time. If the galley is also in the fo'c'sle, keep out of the cook's way while he is preparing your next meal. If you have a card game going or if you are using the galley table as a writing desk, keep an eye on the cook's progress and clear your stuff away when he is ready to set the table. In short, give the cook all the help you can, directly and indirectly, whether the galley is located in the fo'c'sle or on deck.

12. Many men have strong feelings on various subjects such as religion, politics, marriage, and the like. A calm discussion of such subjects may be all right, but emotion-filled arguments should be avoided. If you are taking part in such a discussion and notice that one of your shipmates begins to be emotionally stirred, ease up! Take a trip out on deck, grab a magazine, and start reading, or crawl into your bunk. Do whatever is necessary to stop that calm discussion from becoming an emotion-filled argument. They are bad business in the fo'c'sle. Again, be courteous.

13. Don't be a smart aleck, or a know-it-all. No one knows it all, and "that is a fac'," to borrow a phrase from Erskine Caldwell. Don't be a "sea-lawyer"—the fellow who can "put things to rights," because he "knows the law, by golly!" in any and all situations. Though he may think he knows, he wouldn't do you much good in a court of law.

14. Don't be a "pilothouse rat," a carrier of tales between the pilothouse and the fo'c'sle or deck, between the skipper and the crew. A tired and overworked man (whether in the pilothouse or on deck) may be exceedingly irritable. He may, under trying circumstances, say words that are somewhat less than complimentary to the skipper or to his vessel—words that he does not really mean and which he secretly regrets having uttered. Such words should not be carried to the pilothouse (or from pilothouse to fo'c'sle or deck). The same goes for rumors or gossip. The men who do such carrying, rumormongering, and gossiping are called pilothouse rats, and they are abundantly deserving of that name. Let it be noted, in all fairness, that there are not many such in the fishing fleets. Let it be further noted that most skippers do not enjoy having such an animal on board and will not dream of shipping one, if they know the score.

15. Don't be a crybaby. There is no need to tell your partner or the rest of your shipmates how cruelly your back, your hands, or your arms are hurting. They, too, are equipped with such parts and are using them just as much as you are using yours.

There was the fisherman who suffered an acute attack of arthritis in both hands at the beginning of what proved to be a long and dirty-weather halibut trip. Every joint in his hands swelled completely out of shape and all during the 9 days of fishing and for several days of the home run, he could neither button the fly of his pants, nor use knife and fork at the table. He couldn't bend his fingers enough to grasp such slender tools. His pain must have been excruciating, but he never did mention it, not one word. Moreover, he never missed a watch on deck, and he performed his full share of the work with a pair of hands that looked like deformed bear claws. All was done without a word of complaint. His shipmates admired him silently. To give voice to their admiration would have been too embarrassing for both parties.

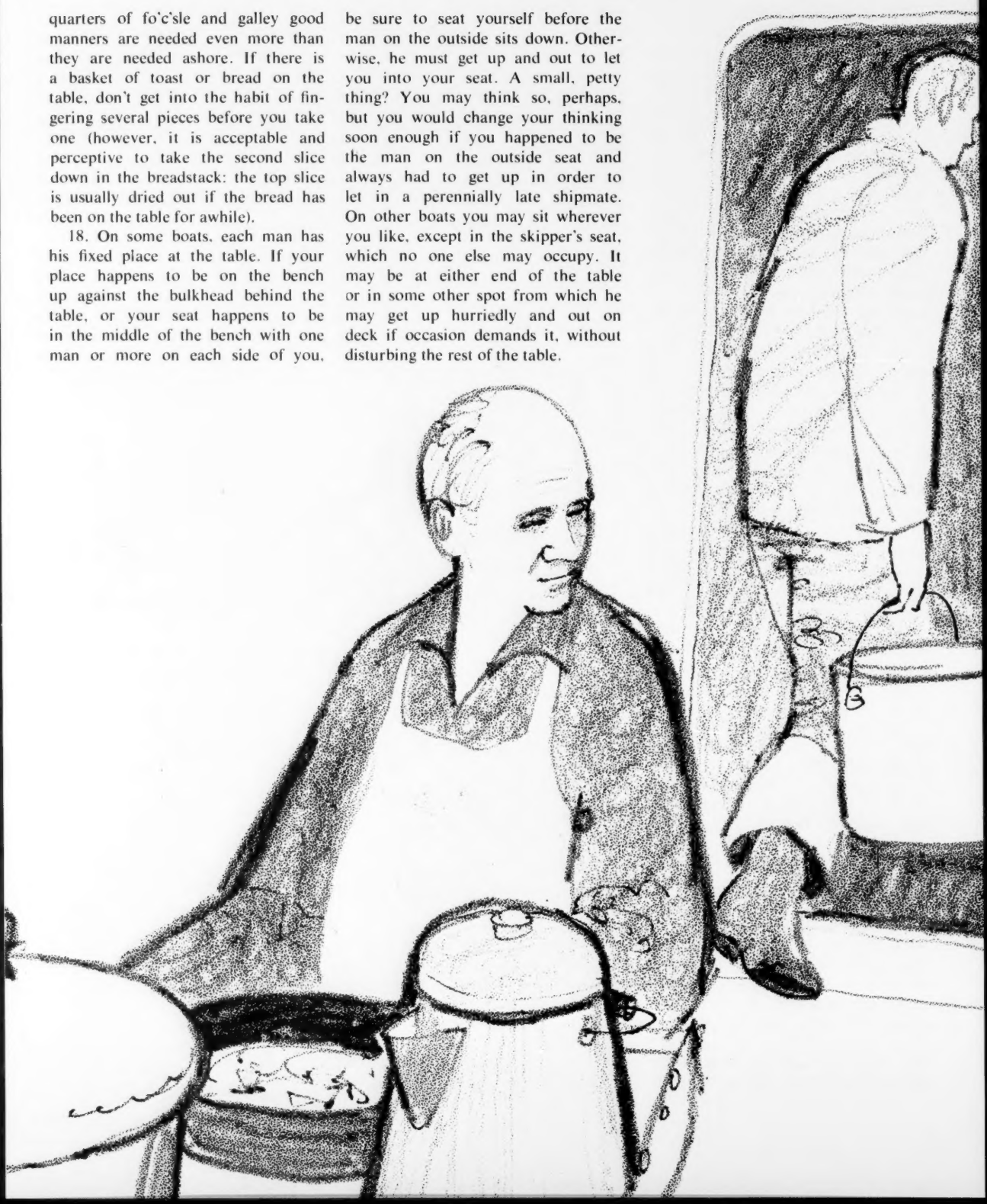
16. Avoid gambling on board the fishing vessel. A friendly (or even a well heated) card game just for the fun of winning can be a relaxing and pleasant pastime on a long run, or on harbor days. When big money comes into the game, however, the relaxed atmosphere will change, slowly but steadily, to an atmosphere of tension that grows in proportion to the money invested.

Many years ago, in the days of the "smoke-boats" (the halibut steamers), gambling on board ship was not only common, it became a plague and a curse. On the long runs from Seattle (or Vancouver, B.C.) to the Alaska fishing grounds and back to home port again, there was plenty of spare time, and a poker or blackjack or rummy game was in progress for days on end. Some men became so enamored with the games that they didn't have time to take their turn at the wheel; they hired and paid a non-gambling shipmate to perform that duty for them. The inevitable result was, of course, that many a fisherman gambled away his share of the trip even before the fish had been sold. Coming home from a month-long trip with a full load of fish—but minus a paycheck—such a fisherman would catch a bit of well deserved hell from his wife and his creditors, which led him to develop some hard feelings against the shipmate, or mates, who had won his money. Sometimes enmity arose between men who otherwise would have been friends.

17. You have no doubt been taught manners—that is, certain accepted modes of behavior in your association with other *Homo sapiens*. Do not leave your manners behind when you go on board your fishing vessel. Bring them with you, because in the cramped

quarters of fo'c'sle and galley good manners are needed even more than they are needed ashore. If there is a basket of toast or bread on the table, don't get into the habit of fingering several pieces before you take one (however, it is acceptable and perceptive to take the second slice down in the breadstack: the top slice is usually dried out if the bread has been on the table for awhile).

18. On some boats, each man has his fixed place at the table. If your place happens to be on the bench up against the bulkhead behind the table, or your seat happens to be in the middle of the bench with one man or more on each side of you, be sure to seat yourself before the man on the outside sits down. Otherwise, he must get up and out to let you into your seat. A small, petty thing? You may think so, perhaps, but you would change your thinking soon enough if you happened to be the man on the outside seat and always had to get up in order to let in a perennially late shipmate. On other boats you may sit wherever you like, except in the skipper's seat, which no one else may occupy. It may be at either end of the table or in some other spot from which he may get up hurriedly and out on deck if occasion demands it, without disturbing the rest of the table.



19. The importance of observing good manners, courtesy, and common decency on board the fishing vessel cannot be overemphasized. And one of the important items in this category is habits of speech. Rough language is not exactly standard speech on board fishing vessels, but it cannot be said to be a novelty, either. Some men use such language simply because they lack a sufficient vocabulary; others, especially youngsters, adopt the rough language in an attempt to sound tough, like what they believe an old "sea-dog" should sound.

Rough, earthy words are part of our language, and they have their uses, certainly. All that habitual use of such language will do for you when ashore, is to stamp you as being ill-mannered, almost but not quite civilized. Your shipmates will not take offense, but these habits, as we all know, are easy to get into and hard to get out of.

20. While speaking of manners, and of words, let's have a quick look at some words that may never be pronounced on board some fishing vessels, and a few other superstitions. Not that all fishermen are superstitious. Some are not, and the kind and number vary from boat to boat, and from fishery to fishery. Some superstitions are so old, and so well ingrained, that to argue over them won't alter anything but tempers. Some, too, have a practical basis on the boat, or used to.

There are forbidden words that no one may utter, on deck or in fo'c'sle: "horse," "pig," "hog." They are taboo. According to an old and well established superstition, the mere mention of those animals is enough to bring bad weather, poor fishing, snarls on gear, a line in the propeller, or any other trouble you care to mention. It is deemed to be very bad manners, if not worse, to voice these unmentionable names.

Don't turn the hatch cover upside down. Such carelessness will surely bring engine trouble. Don't whistle in the pilothouse, because that will bring a southwest storm over your head. Don't bring a black suitcase on board a fishing boat. Bad luck galore will be the result of such foolhardiness—as bad as if you were to break a mirror, although not quite as bad as if you bring an umbrella on board ship. That's the very last straw, and anything is liable to happen to the fishing, the vessel, and to each and every man on board.

Don't be quick to laugh, poke fun, or debunk the superstitions. The differences between a habit, a ritual, and a superstition may be one of degree, whether it is yours or his. Because they are more a product of emotion than reason, they will therefore be defended more hotly.

Your Outfit

You are going to sea as a full-time fisherman, which means that you are going to sea to live as well as to work. Living on a boat is in several respects very different from living ashore. One of the things you need for successful living afloat is special clothing which may differ a great deal from the garb you use ashore.

Chances are that you have never been health-conscious—that you have never seen any particular reason for taking care of your health. Such care is quite necessary at sea, however, because a commercial fisherman can't call his doctor or send a boy up to the drugstore. He can't just call the office and announce, "I won't be in today. Got a nasty cold. Going to stay in bed all day." No sir, the fisherman must go on deck and attend to the business of getting a trip of fish on board, cold or no cold. Therefore, he must do his best to prevent that cold from getting started. And this is why you need special clothing: to protect your health as best you can.

Now, what kind of clothing should you wear at sea for your health and comfort? Watch what the rest of the crew wears, but some tips follow that are generally true of most vessels fishing deepwater.

Let's begin with the underwear which should be all or mostly wool. Wool does not get cold when wet, and as a commercial fisherman you will certainly get your underwear wet from perspiration, if not from that breaker over the railing which is bound to give you a wet greeting, sooner or later.

Among deep-sea fishermen, the one-piece wool "union suit" is commonly worn, although many men prefer the two-piece. One piece or two? No matter, only let it be wool. Your fishing shirt and your fishing trousers—pants, in the vernacular of the fisherman—also should be woolen. Fishermen generally cut the shirt sleeves off about halfway between the elbow and the front end of the cuff. That cut should be sewed (cross-stitched) with woolen yarn to prevent raveling.

A wristlet is a knitted wool or nylon tube with a short, narrow thumb strap sewn onto one end. The wristlet, as indicated by its name, is made to protect your wrist and forearm. The smaller opening in one end fits the base of your thumb, the larger one the rest of your hand almost down to the knuckles. The body of the wristlet is pulled up over your forearm and part of your shirt sleeve to well above the elbow, where it is fastened by means of two strong, fairly large, safety pins. A set of wristlets, or "wristers" as they are also called, is an important item of clothing for a deep-sea fisherman. They keep your wrist warm, thus helping to prevent stiffness and soreness of the joints; they protect the skin of your forearms from being scratched or torn by such gear as web, hooks, and lines; and they prevent the cuffs of your oilskin coat from chafing your wrists. They should be washed at least daily.

Rubber boots should be large enough to allow air to circulate around your feet. Even a small amount of circulating air will minimize the natural rubber boot condensation to some degree. Woolen socks are, as a rule, worn outside cotton socks, or cotton socks inside sheepskin bootlets. Whatever the combination, have it on when trying new boots. The boot may be either three-quarter-length or full-length. It's a matter of personal preference. The three-quarter-length boot is heavily built, strong, and not easily punctured. It is easy to get into, can be kicked off with comparative ease in case of an emergency, and is the type most used.

Some men prefer the full-length boots, of the type used by steelhead fishermen. These boots are light and easy to pack around. They are insulated from the ankle down and are warm enough so that woolen socks and bootlets are not needed. A thin inner sole, and ordinary shore socks will serve. Being light, these boots cannot take the punishment that may be meted out to the stiffer, but more heavily built boots. They are susceptible to rips, tears, and punctures (by spines of dogfish, rockfish, etc.) and must be treated with a degree of care. Also, the full-length boots (hip boots) must generally be suspended from the pants belt with a lanyard. Personal preference varies.

If these light sports-type boots are used, a pair of suspenders for the pants may be a good idea. Some fishermen prefer suspenders because

this gives greater freedom around the waist. Boot types will vary considerably according to the type of work, sea conditions, and so forth. Inshore fishermen may use only knee length boots. Note what is the most used boot on your vessel as a guide.

In the offshore fishery, heavy duty, three-quarter-length boots seem most popular. They are stiff enough to remain extended without having to be suspended from a belt, and they extend only halfway up between the knee and the hip, although heavy-duties are also available in full hip boots. They are convenient to get on and off, which may pay dividends if they must be discarded in an emergency, like after falling overboard.

Oilskins—raingear, shore people call 'em. Not so in the fishing fleets, where we still use the traditional name, oilskins, although modern oilskins have nothing at all to do with oil. The word is a relic of the old days when oil-soaked cotton cloth was the material used.

There are any number of brands and qualities of oilskins to be had: all-rubber, rubberized, vinyl-coated, and so forth. The vinyl-coated types are excellent, resistant as they are to oil, grease, acid, and chemicals. Oilskins come in several colors: yellow, black, gray, green, etc. Be sure that the oilskins *you* buy are bright yellow. That bright color might save your life one night if you should go overboard. It also keeps you visible on a dark deck.

Oilskin pants worn outside the boots may bind at the knees. Pulling

up oilskin pants several inches and putting a heavy-duty rubber band around the pants leg gives needed freedom and may prevent the boot from being filled when an extra large breaker comes aboard.

What and how much to buy? Here is a list, as a general guide. Items will vary, depending on the fishery:

2 sets underwear
2 fishing shirts
2 pair fishing pants
2 pair wristlets
2 pair socks
1 pair deck slippers
2 pair bootlets
2 pair oil pants (one should have a spare pair of pants on board!)
1 oil jacket
1 pair boots
1 sou'wester, if no hood on the oil jacket.

It is not a good idea to look for bargains when you go out to buy your first outfit of fishing clothes. Such bargains can turn out to be costly indeed! The proper place to get your outfit is at a fishermen's outfitting store. Such stores carry all the stuff you need; their clerks are trained men, professionals who know your needs even better than you do yourself, and who are ready and willing to give you sound advice. Also, an outfitting store will let you have your outfit on credit if you should need it.

If the boat on which you have shipped trades at the store, your store bill will be deducted from your check at the time of settlement. If not, it will be to your advantage to pay your store bill promptly upon receiving your check. One of the worst things that can happen to a fisherman's name is to get a reputation for not paying his bills. Once earned, that kind of reputation will make it difficult to get a job on board a decent vessel, and impossible to get credit. The word has a way of getting around.

A small sewing kit with needles, thread, wool yarn, and a few buttons is necessary equipment for the deep-sea fisherman, as is an inner-tube mending kit for repairing boots. If you are an habitual user of cigarettes, candy, or chewing gum, be sure that you take along an adequate supply of these items.

If you use cigarettes and the boat operates at sea outside the 3-mile territorial limit, sea stores may be purchased by the skipper through the custom house. Liquor is also available if the skipper so chooses, but not all do. Sea stores are tax free, and these cigarettes and liquor cost about half shoreside prices. These items must be kept locked up in town, cannot be taken ashore, and must be consumed at sea. Heavy fines and removal of the sea stores privilege can be the consequence of violations. Ask your skipper about this. Many buy the cigarettes, but others do not permit liquor aboard while at sea.

Gloves should be bought according to need, which depends upon what kind of fishery you are going into. The clerk in the outfitting store will give you good advice here. If you are entering the trawl fishery where you must handle used or old wire rope, be sure to get a pair of good, heavy leather gloves for wire rope work.

On a longline vessel you must furnish your own hook-set, a rather simple tool used for bringing a bent fishhook back into its proper shape. Before leaving on your first trip, ask one of the gang to show you how to make one. You'll also have to buy yourself a splicer, a small wooden-handled marlinspike used for "sticking gear," and for splicing lines. Yes, and you need to buy a good pocket knife, also.

One more item to buy: bedclothes. Some fishing vessels furnish a mattress for your bunk, but some of the older ones don't—you must pack your own. Many men prefer a good, heavy, air mattress while others prefer sponge rubber. Air mattresses may be inflated to whatever hardness is preferred. A rule of thumb is that when sitting on it, your bottom just touches the bunk boards. Therefore, when lying down, the mattress will support all your body contours. It is very convenient to deflate, roll up, and put in your seabag when moving ashore or to another boat. Be certain that you have a patching kit. Punctures from chafing and nailheads in the bunk cause air leaks, sometimes at awkward times. The likelihood of air leaks increases with the age and quality of the mattress.

In a foam rubber mattress hardness is constant. It may be rolled up for transport, but will fill the sea bag and then some. It will not deflate. Its useful life is virtually indefinite so choose with care. It will be many years before you must buy another one. It requires no other maintenance than to keep it clean. Cost may be higher than for an air mattress, but this comparison may depend on the quality of air mattress you have in mind.

Foam rubber pillows are preferred by many fishermen. They do not ball up or form lumps and hardness is constant. Bedsheets are not generally used on board fishing boats. Blankets, yes, if you prefer them. A sleeping bag with two or more washable liners is, however, by far the easiest and most practical bedding.

Be aware that what is here being said about proper fishing clothes does not hold true for the summer fisherman, such as the seine and/or gill net fisherman operating on inside waters, such as in Puget Sound or southeastern Alaska. For summer (inside) fishing almost any old clothes will do. Oilskins, boots, and gloves, however, are "musts" in any waters, any time of year. Note, also, that in the purse seine and gill net fishery, a skirt or an apron is often used instead of oilpants, with no exposed buttons ever for the seine web to hook. And, do not forget that a sou'wester is part of a suit of oilskins, too, if your oil coat does not have a hood.

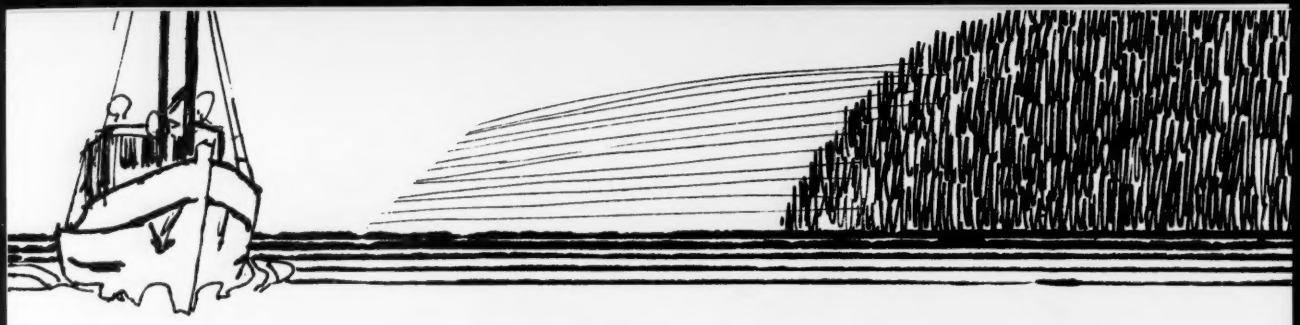
On Duty in the Pilothouse

On board the fishing vessel a part of your duty will be performed in the pilothouse: standing wheel watch. Though it's a small part reckoned in hours and minutes, it is a very important part, because when you go on wheel watch you are assuming a rather serious responsibility. Your watchfulness and your reactions before a dangerous situation develops could determine life or death for yourself, your shipmates, and your vessel.

Your experience probably will have to be gained in many pilothouses, under many skippers. Each will have his own rules or method of operation; each will have personal traits you may or may not like. It will be well to remember that you and your shipmates also have your quirks and your foibles. But in the tight little floating community of which you now are a member, everyone must learn to get along with everyone else. Each of your paychecks must come out of that load of fish you are trying to get on board. First and foremost, you must learn to get along with your skipper.

Each time you enter the pilothouse these first months at sea, take half-a-second to remember that you are indeed a novice—a "greenhorn" in fishermen's vernacular—with practically everything to learn in this new and strange occupation. You cannot learn all you need to know from this article, or from any number of books, for that matter. The knowledge you must acquire in order to become a competent and dependable all-around fisherman/seaman, fully trustworthy anywhere on board, including the pilothouse, must be learned in the only way possible—by experience. And that is just what you are now trying to do—gain experience. Still, it will do you no harm to know, even before you enter the pilothouse, some of the things you must or must not do when you make your debut to take your first "turn at the wheel."

The first thing you must learn is to obey orders quickly and without



backtalk. That you must do on deck, too, of course, but it is still more important in the pilothouse. Bear in mind that perhaps one day *you* will be the one who gives orders. We have an old and very true axiom which tells us that "one must learn to *obey* orders before one can learn to *give* orders."

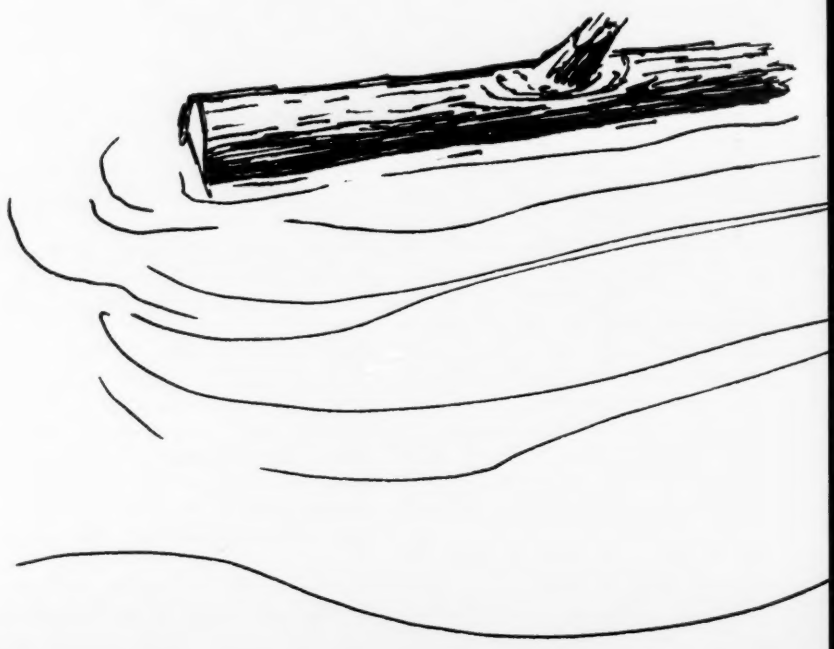
The skipper will specify where or when he wants to be called, and this order should be strictly observed. In addition, you must call the skipper if and when you are uncertain about any item relevant to the safety and well-being of the vessel such as a course change, on which side to take an on-coming vessel, cross-traffic, sudden loss of visibility due to fog, rain-thick, or snowfall, sudden or violent increase in wind, or if you think that you must make an unscheduled change in speed. In short, when in doubt as to the proper course of action, call the skipper.

Your job in the pilothouse is not just to steer the boat. It is, first and foremost, to keep the skipper informed, to be his eyes and ears when he is away from the pilothouse, whether in his bunk or in the galley. The skipper must be kept informed; once he knows the problem, he will do his own thinking, make his own decisions, and take full responsibility for the consequences of those decisions. He will tell you how much responsibility for decision in the above situations he expects of you.

A second and very important thing to learn right away is how to slow down the engine and disengage the clutch if the need arises. Your skipper or engineer (if there is one on board) will show you how. If they forget or neglect to do so, ask to be shown. Here is why: if and when you collide with a log or other fair-sized piece of driftwood, you must throttle down the engine and disengage the clutch in order to prevent the debris from getting caught by the propeller. There will be no time to "think it over." Your action must come quickly—instantly—upon your hitting the object if you are to prevent damage to your propeller. You must know beforehand which movements to make, so that your hand can reach for the throttle while your other hand goes to the clutch control lever.

A log, or even a not-so-large piece of driftwood, can do a great deal of damage, such as bending a propeller blade or the propeller shaft. Damage to either one is a costly affair, not only for the vessel's owner who pays the bills for dry-docking and repairs, but perhaps even more costly for the crew because fishing days, maybe the trip, are lost. This brings us to a fact worth remembering: lost time, whether hours or days, cannot be replaced.

When taking over the wheel, the man you relieve will give you position and course, and you must repeat after him, so that he may be sure that you hear and understand what he says. There is no legal form for conveying this information, but here is one that is useable. "We are in A-



strait, passed B lighthouse at 1933, course is SW by W one-half W. She has been making close to 9.5 knots on my watch." You must repeat what you hear in order to guarantee that you received the information correctly. If the skipper should give orders for a change of course, be sure to repeat after him, always.

There will be a logbook in the pilothouse. On inside runs, keep the logbook up to date! Write down each point of reference, the exact time of having it abeam, and the course up to the next point of reference. Don't erase! There must be no erasures in the logbook; an erasure will discredit the logbook so that it may not be accepted as evidence in a court of law. If you do happen to make a mistake, draw a straight, thin line through the entry (so that it still may be read), then rewrite on the next line below. Double check each entry in your logbook; erroneous information is worse than no information at all.

Eyes front! Keep a sharp lookout, especially when on inside waters, such as the inside run from Puget Sound to the open ocean.

Most fishing vessels have an automatic steering device on board. It was nicknamed "Iron Mike" years ago and remains so named to this very day. "Mike" is indeed a great labor-saver and an excellent helmsman, who will steer most courses better than any human hands. Still, "Mike" has his shortcomings. For one thing, "Mike" does not know how to think for himself and must depend on you to do the thinking for him. He does not hear the order to change course. You must hear for him. For another thing, "Mike" is unable to look up ahead, and so he must depend on your eyes. In very bad weather hand steering may be better under some conditions.

Learn how to operate the "Iron Mike." Several systems of automatic steering are in use, and they are not all alike in every respect. On some types one must disengage the "Iron Mike" clutch when altering course, on other types not. Become familiar with the one you have on board so that you will be able to change course on short notice.

Now, "Iron Mike" keeps your vessel on its course for you, which leaves you free to devote your full attention to looking ahead. A sharp scrutiny of the waters right in front of your bow is very important, because every one of the 900-odd nautical miles between Puget Sound and Cape Spencer is richly endowed with driftwood: logs, large and small, and much other debris that can do great damage to your propeller and propeller shaft if given the chance. Furthermore, once you have passed Petersburg, Alaska, you may well meet small flotillas of icebergs, too many of which are large enough to sink your boat in a collision.

Learn to "box the compass," that is, to read the compass rose by points, half-points, and quarter-points. Some skippers (and mates) give courses in degrees, but a good many still use the point system. In any event, a seafaring man must know how to receive orders either way; hence he must know the art of "boxing the compass."

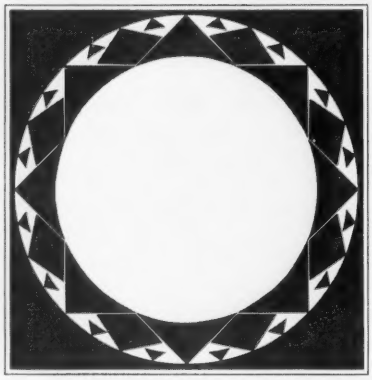
Do not read on your wheel watch! In later years since "Iron Mike" has been pressed into service as helmsman, much monstrous recklessness with other people's lives and property has been practiced on certain fishing vessels, sometimes with the skipper's permission, one hears! Be that as it may, the fact remains that a man who will read a story while he is supposed to be on lookout, and indeed is responsible for the safety of vessel and crew, is unfit to be in a pilothouse. The skipper who consents to such reckless behavior is also lacking in good judgment.

When running at night, step outside the pilothouse once or twice on your watch, especially if you see the running lights of an oncoming vessel up ahead, and make sure that your running lights are burning. A burnt-out bulb in one of your running lights can easily be the cause of a collision, especially on inside waters.

If you have to travel inside waters during the gill net season, you will more than likely have to travel through waters where dozens, even hundreds, of gill net boats are fishing. Here you must be "extra-extra" careful. It is not only a question of looking ahead and of seeing all those lights, it is also a question of judgment, of trying to decide for yourself which light represents the gill net boat and which one the tail end of his gill net! And even worse, which taillight belongs to which boat? On the bridge or in the pilothouse of a larger fishing vessel your eyes will be some 12 to 20 feet above the waterline; from that height it can be extremely difficult to judge the difference in height between the stern light on a gill net boat and the light on the tail end of the net. A sharp lookout, coupled with a wide-awake watchfullness, is of the essence! If ever in doubt, call the skipper and get his help.

If you do run across a gill net, your ability to quickly throttle down your engine and disengage your clutch will be of great importance. Do not try to back up. A gill net in the propeller is something to be feared like the plague. For one thing, the net may be greatly damaged, causing loss of fishing time to its operator and perhaps an appearance in a court of law for yourself and your skipper. For another thing, your own vessel may be disabled, and have to call for a tow. One cannot run very far with any amount of gill net web and lines wrapped around the propeller. Furthermore, nylon web and lines, or lines of any artificial fiber for that matter, will damage the propeller shaft and stern bearing if that fiber is wrapped in the propeller and kept turning for any length of time. Moral: Don't get a gill net in your propeller!

Show decent respect for and courtesy to your skipper. That does not mean that you should be obsequious, or "crawling"; it does mean that you owe the skipper the respect of a novice for an expert—of a follower for his chosen leader. Remember, the skipper is your leader in your work as well as in your general living while you are on board his vessel; he is also the expert upon whose knowledge and skill your earnings depend, as well as your safe return to dry land.



Leave the electronic instruments (sounders, radar, loran, ship-to-shore telephone, R.D.F., etc.) strictly alone, except upon orders from the skipper, of course. The instruments belong to the vessel, not the crew, and the skipper (not you) is responsible for their use. If the skipper wishes you to use any of them he will tell you so, and instruct you.

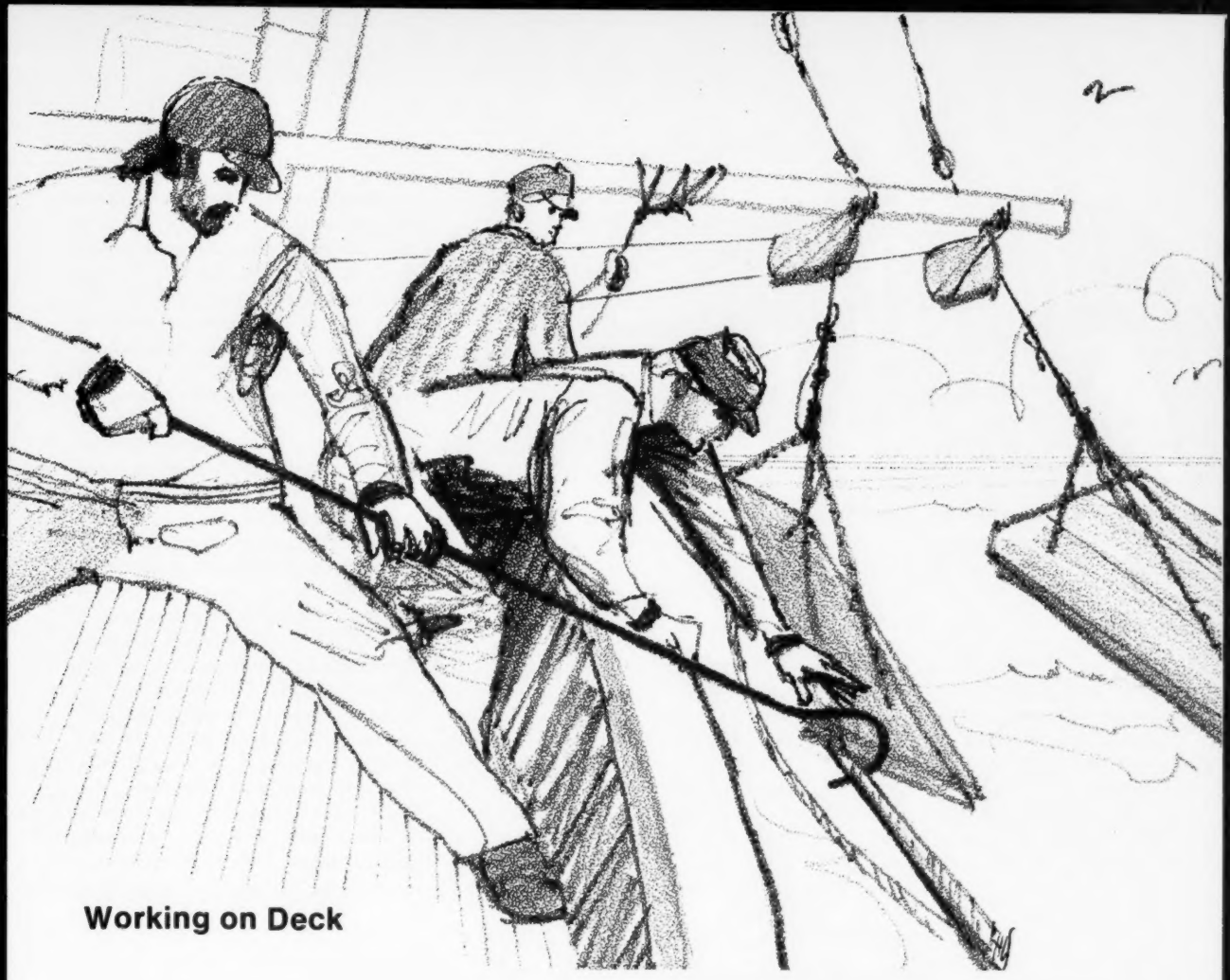
Do not help yourself to the use of charts and/or other navigational equipment. They are the property of the skipper. If he thinks it desirable or necessary that you consult a chart, he will show you the one in question. On the other hand, if you have a genuine thirst for knowledge, you should, of course, ask the skipper if he will be good enough to show you a certain chart and teach you how to read it.

Don't get into the habit of cluttering up the compass shelf with things that don't belong there; most skippers take a dim view of that particular type of disorder. Any object made of iron or steel (tin cans, knives, splicer, etc.) must be kept at least 3 feet away from the compass so no magnetic error will affect the compass needle. Photographic light meters and cameras with built-in light meters must also be kept at least 3 feet away from the compass; the same is true of flashlights. In short, keep the compass shelf uncluttered, and never place any iron or other material nearby which will affect a magnetic compass.

When your wheel watch is over and the next man comes to take the watch, remember to give him course and position. Don't force him to ask you for it. See that he repeats the information back to you correctly. Was your relief prompt, and did he appear in the pilothouse on time or was he 5 minutes behind the clock? By the way, did *you* take over the wheel on the stroke of the hour, or were you a few minutes late? Remember, your trick at the wheel starts on the stroke of the hour, not 5 or 6 or 10 minutes after the hour. It is customary to be a few minutes early, get the watch data from the man being relieved, and then relieve him when the clock strikes the hour.

If you have fish in the boat, be sure to pump out the fishhold before going below. All fishing vessels have a hand-operated pump on deck; many boats have one or more pumps installed in the engine room. These may be electrically or mechanically driven and may, on some vessels, be started from the pilothouse. If you use the hand-operated deck pump for pumping out the hold, count the strokes each time you pump. This will tell you if the ice is melting normally; an unusually large number of strokes will warn you that your vessel may be taking in water; that a small leak has developed somewhere below the water line, in hull or in stern bearing.

The deck pump may have to be "primed" in order to pick up the water from the bilge. Use the draw bucket; a single bucketful will do the trick. If you use a power-driven pump, look at your watch when you start the pump and again when you stop it. If you find that the water in the bilges appears to be on the increase, notify the skipper at once.



Working on Deck

In commercial fishing, the handling of the various types of fishing gear is almost always teamwork. In the purse seine, beach seine, lampara seine, as well as in the otter trawl fisheries, the entire crew works as a team; in longlining, two men work as a team most of the time.

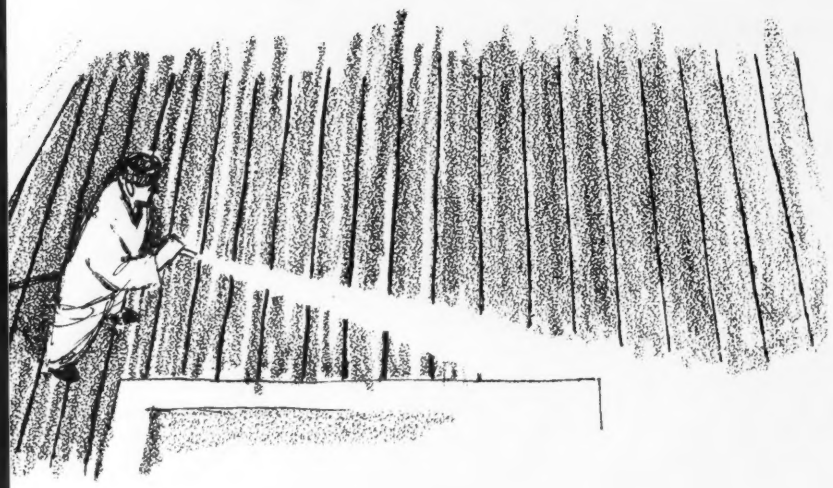
On a longline vessel a new or green man will always have an experienced man as his partner or teammate, whose job it is to break in the beginner, teach him the tricks of the trade, and do whatever must be done in order to transform the greenhorn into a competent deep-sea fisherman. During this period of learning it is the beginner's bounden duty to do his best to learn as fast as he can and to obey orders from his partner without arguments or back talk. Remember, while you are learning you will not be able to do your share of the work, and it is your partner who must take up the slack when you fall behind.

To put into print a detailed description of how to work on deck would be a rank presumption. Further, it would be an utterly useless undertaking, because each and every skipper has his own idea about how he wants work performed on board his vessel. Besides that, every experienced fisherman who takes it upon himself to break in a green man has his own idea on how to go about that task. Hence, a detailed description on a printed page would do little good. There are, however, some fundamental facts that will serve as guidelines for the budding fishermen. We'll briefly mention some of the more important ones, starting by enumerating a few things to remember.

1. Safety first, always! That means safety of others as well as your own. Look out so that you don't get hurt or cause a shipmate to get hurt.

2. Get out of your bunk the moment you are called. Don't be the last man on deck. Be first as often as possible.

3. When pulling and hauling as part of a team, make sure that you pull and haul your share of the load. Yes, and a wee bit more, too, if you can. "Pull hard, and it comes easy" is more than just a clever play on words. For instance, when stacking down a purse seine be sure that you



have as much of the web between your fists as your working partners on the seine table have between theirs. Watch your working partners' hands (and feet), and learn to work in concert with them.

4. When some small but unpleasant job is to be done and you have the know-how, do it! Your shipmates are doing part of your work for you while you are learning and will continue to do so until you have learned to be as proficient in your work as they are. Show them that you understand and appreciate that.

5. Learn to handle deck machinery and to operate it with care so you don't hurt yourself or abuse the machinery. The different pieces of deck machinery are the tools needed for the performance of your work. It is part of good seamanship to avoid abuse of these tools and to help keep them in good working order. When using the wash-down water hose, be careful not to throw a "kink" in it when moving along the deck. A sharp kink in the hose may well cause back pressure to break the water pump.

6. Keep your vessel clean! A dirty deck is a dangerous deck. Hose down the deck as soon as you notice even a small accumulation of trash. Many a man has taken a bad fall and hurt his back, knocked a hole in his scalp, or toppled overboard because he stepped on a blade of slippery kelp, a piece of gurdy bait, or a small flatfish just as the boat made an unexpected roll. It takes only a minute to hose down the deck, and it is a minute well spent, for reasons of both comfort and safety. A hosing down is always in order; on the stern of a longline boat frequent hosing down is of the utmost importance, because pieces of old bait will be strewn around

when men are trying to bait in a hurry. A dirty deck is dangerous so keep your deck clean. The fellow you save from going overboard may be yourself!

7. Find your sea legs as quickly as you can. A goodly share of both your comfort and safety depends upon how well you can stand on your feet when the boat is pitching and rolling. It has been estimated that, on the average, a commercial fisherman must use about one-third of his strength just to keep himself in an upright position. That's a man with sea legs, mind you. Before you find your sea legs you may have to use up as much as one-half of your strength keeping yourself in a vertical position, even in a most moderate sea. In somewhat rough fishing weather you may well have to use most of your strength for that purpose which will leave you with little strength for your work.

8. Keep your head covered when working on deck. This rule applies to everyone, only more so to those with long hair. Fish slime and fish "gurry"—the partly digested food-stuff in the guts of the fish—contain irritants that may cause a most unpleasant scalp itch (and perhaps permanent damage). When stacking a purse seine or retrieving a trawl net, wear your sou'wester! Small particles of jellyfish will be fairly raining down upon you from the net; they are unpleasant and potentially dangerous to your eyes, skin, and scalp. Uncovered long hair may easily get caught in running tackle, drivebelts and chains, gears, sprockets, etc. Don't take foolish chances. Wear a sou'wester or other suitable head covering.

Those are the do's. Now let's have a go at some don'ts.

1. Don't step on or inside a coil of rope such as purse line, buoy lines, or warps while gear is being set out. Such practices may provide you with a quick trip overboard, plus a broken leg or a mangled foot, or both.

2. Don't grab running gear, longlines, buoylines, warps, and the like

outside the roller or linepuller. Broken arms and mangled hands will be the result of such foolishness. If you must work on gear outside the roller or linepuller, be sure that the gurdy or linepuller has come to a complete stop before you touch that gear!

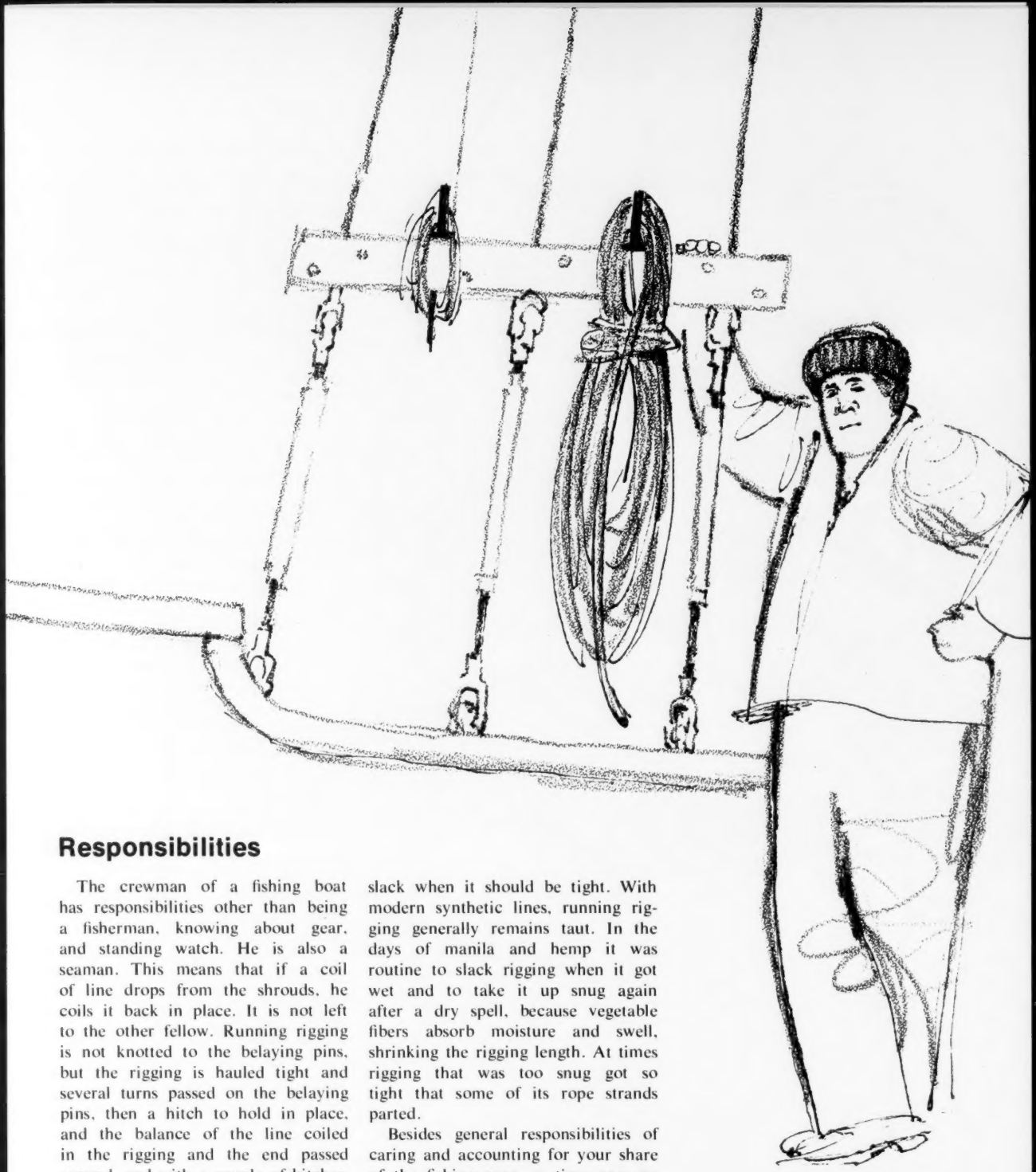
3. Don't neglect to wear gloves when handling fishing gear. If you are dealing with wire rope, wear leather gloves. Your hide is easily punctured and remember, most infections develop from small punctures.

4. Don't stand in line with the warp (wire rope) leading from the block at the railing to the winch drum when hauling in the trawl warps. If the wire rope should break, its whipping end might hit you and divide you into two unequal parts. Always think of a taut wire or line as a rifle barrel: dangerous if pointed at you.

5. Don't try to fairlead a wire rope, whether warp or anchor cable, onto the winch drum by pushing on it with your hands or your feet. If the winch is not equipped with proper fairleads, use an iron rod, a length of pipe, or a hardwood pole for guiding the wire rope onto the drum. Then be sure that you have good, solid footing, because a fall across the incoming warp may carry you into the winch.

6. Don't step on the tackle as it comes down on deck from the gypsyhead. Instead, throw the tackle-rope away from and clear of your feet.

7. Don't put too many turns on the gypsyhead when using an old-fashioned deck (purse) winch. Just one turn too many may cause overlap. If this should happen to you, stop the winch at once and call for someone to give you a hand clearing the tackle. It is not good practice for one man to try using the gypsyhead for pulling line while manning the start-stop controls, even if they are close by. The practice is common, and so are the resulting accidents. If you get entangled in the line, you may not be able to reach the controls. Keep this in mind.



Responsibilities

The crewman of a fishing boat has responsibilities other than being a fisherman, knowing about gear, and standing watch. He is also a seaman. This means that if a coil of line drops from the shrouds, he coils it back in place. It is not left to the other fellow. Running rigging is not knotted to the belaying pins, but the rigging is hauled tight and several turns passed on the belaying pins, then a hitch to hold in place, and the balance of the line coiled in the rigging and the end passed around, and with a couple of hitches, tied into a neat bundle.

Keep an eye about you for rigging that is chafed, or is rubbing against a stay and will get chafed, or is slack when it should be tight. With modern synthetic lines, running rigging generally remains taut. In the days of manila and hemp it was routine to slack rigging when it got wet and to take it up snug again after a dry spell, because vegetable fibers absorb moisture and swell, shrinking the rigging length. At times rigging that was too snug got so tight that some of its rope strands parted.

Besides general responsibilities of caring and accounting for your share of the fishing gear, as time goes on you may be elected a representative of the crew (called a delegate in some fisheries), or take on the job of being the cook or the chief (the engineer).

By that time you will know what special knowledge these crew members need and the responsibilities they have. The delegate is often a deck boss, who may oversee the maintenance of the gear, besides sitting with the skipper and going over the bills before a settlement. If there is a union, he is its representative. Even when there is not a union, there is generally a group leader on deck through the tacit understanding of skipper and crew.

The cook and the chief have their separate domains of responsibility and prerogatives. Observe these and their privileged relationship with others: they will not be posted as a watch bill of do's and don'ts in the galley or fo'c'sle.

The simple act of making fast to another boat, or to the dock, or of letting go, though it seems so smooth and effortless, is also an act of seamanship. In time you will note the habits (and shortcomings) of the skipper's style in coming alongside the dock, another boat, or the sequence usually followed when letting go. Anticipate the need for fenders over the side. Know where they go and how far to let them down. Only under very special circumstances will the stern line be made fast before the bow line. Learn to check the way of the boat smoothly, keeping your hands clear.

God help the man who takes a turn on the cleat with a knot first! With a severe strain on modern nylon line, cutting the line is the only way out of that dilemma. Put turns only on a deck cleat—no hitches.

Know about the use of spring lines, how a boat can be warped around the end of a dock, or sprung out from the dock so the vessel can back away without scraping the dock or an adjoining boat. In close quarters, be ready to fend off from another boat with the fender, and keep the skipper informed of any other boat that may suddenly move into the way but out of his line of vision.

In the Seattle, Washington area, most fishing vessels must transit a set of locks, either coming from or returning to sea. Depending on the tide level, the drop from the ship canal to sea level varies from 12 to 24 feet. When tied to the lock wall, there are special problems that require constant alertness when tending the lines.

When rising or falling, lines must be taken in or let out constantly, with enough tension maintained to keep the boat close to the wall, but without parting the tie-up (or mooring) lines. Other complications are that water turbulence from the lock pumps makes the boat bounce and sometimes the lock chambers are crowded with other boats.

The lockmaster gives the orders here—where to make fast, when to let go—but make certain the skipper also "gets the message." These and others are skills that become second nature—a set of understandings between you, your shipmates, and the skipper. In all aspects of operation, either around the dock or at sea fishing, one of the noteworthy characteristics of a well-run boat is the lack of orders, or instructions that pass between skipper and crew. This characteristic has been noted by observing people many times, when they first come aboard a fishing vessel.

Another job is to get stores aboard just before leaving town. Everyone helps get the groceries aboard and usually the cook puts them away. Taking aboard ice at the chute may involve only one or two men or more if bait also comes aboard. Memorize exactly where the bait goes in the hold, how much ice is stored in each side-pen and in the slaughter houses.

Icing fish at sea has to be done in a particular sequence, since the hold is nearly full of ice and bait. Oh, the misery of work that results when too much ice is put in the wrong place! Whether there are 10 tons or 20 tons aboard, it will all have to be moved at least once, either with a scoop or a shovel, before the hold is iced full of fish. If there is a ton or two in the wrong place, that will have to be moved twice with a shovel and a sore back, and this does indeed make a man very observant when taking ice the next trip.

Lube oil, fuel, and water will be taken aboard at the fuel dock. Know which deck flange is for oil, which is for fresh water. You will be instructed by the chief or the skipper. Keep a sharp eye on the hose nozzle, so that you don't overfill and find oil spouting all over deck and yourself. Grease the deck flanges before screwing them back in place. Make them snug, but don't use a hammer on the wrench. If oil is spilled on deck, clean it up. Ordinary dishwashing detergent is an excellent oil cleaner. Scrub in the detergent, then rinse off with hose. Repeat if necessary.

Let's talk about that deck a little bit. It is both a working platform and a roof over your head in the fo'c'sle, the hold, the engine room. Most fishing vessels still have wooden decks and caulked seams. You will also note that in most cases they are tarred or oiled for protection and preservation of wood. A knife, splicer, or other sharp instrument stuck into the deck pierces the tar film and forms an entry for water and possibly the beginnings of dry rot. If the deck is damaged by accident, let the skipper know so he can treat it.

A fishing boat works in a running sea, and this may loosen the caulking in time. Also in hot dry weather, the wood and caulking shrink, so that water may drip through below, sometimes onto your bunk. Eventually under wet conditions this will stop. If it doesn't, again let the skipper know.

The Hold

You will get well acquainted with the fishhold in your boat, its arrangement and working practices therein. Each fishing boat's hold varies in size and arrangement, but some general statements are in order.

The fishhold is divided into *crossings* varying in number from three to six, depending on their size and on the species of fish carried. One crossing is one transverse division from port to starboard, and is usually subdivided fore and aft into three compartments by *pen boards* that are inserted into channel frames, and when all pen boards are in place up to the deck, the hold is *penned up*.

That portion of the hold at each side of the keel where the bilge curves upward, when divided off, becomes a *side-pen* (sometimes called a *wing-pen*). The square area over the keel is called the *slaughterhouse*.

If the hold is divided into four crossings, we then have forward and after crossings. Each crossing has its side-pen and slaughterhouse, either forward or aft, or second and third slaughterhouse in between (numbering from forward). If there are four crossings, in addition to the forward and after crossing, there will be a "second" and "third" crossing in between. In either the after or forward end of the fishhold, there is a pit covered with heavy boards that usually are notched or bored through with holes to permit drainage. This pit is called a *sump*. All meltwater from the ice and fish drains to the sump and this has to be cleaned out last after washing the hold. Solids left in the sump can plug the suction line to the bilge pumps in addition to creating an unsanitary condition.

In the schooner-type vessel, the slaughterhouse floor is flat. But in a seine-type vessel with the engine forward, the propeller shaft passes through the fishhold with a shaft box generally built around it, possibly a foot or two high running the length of the fishhold. The boards covering it must be removed and washed, and the inside of the shaft box washed.

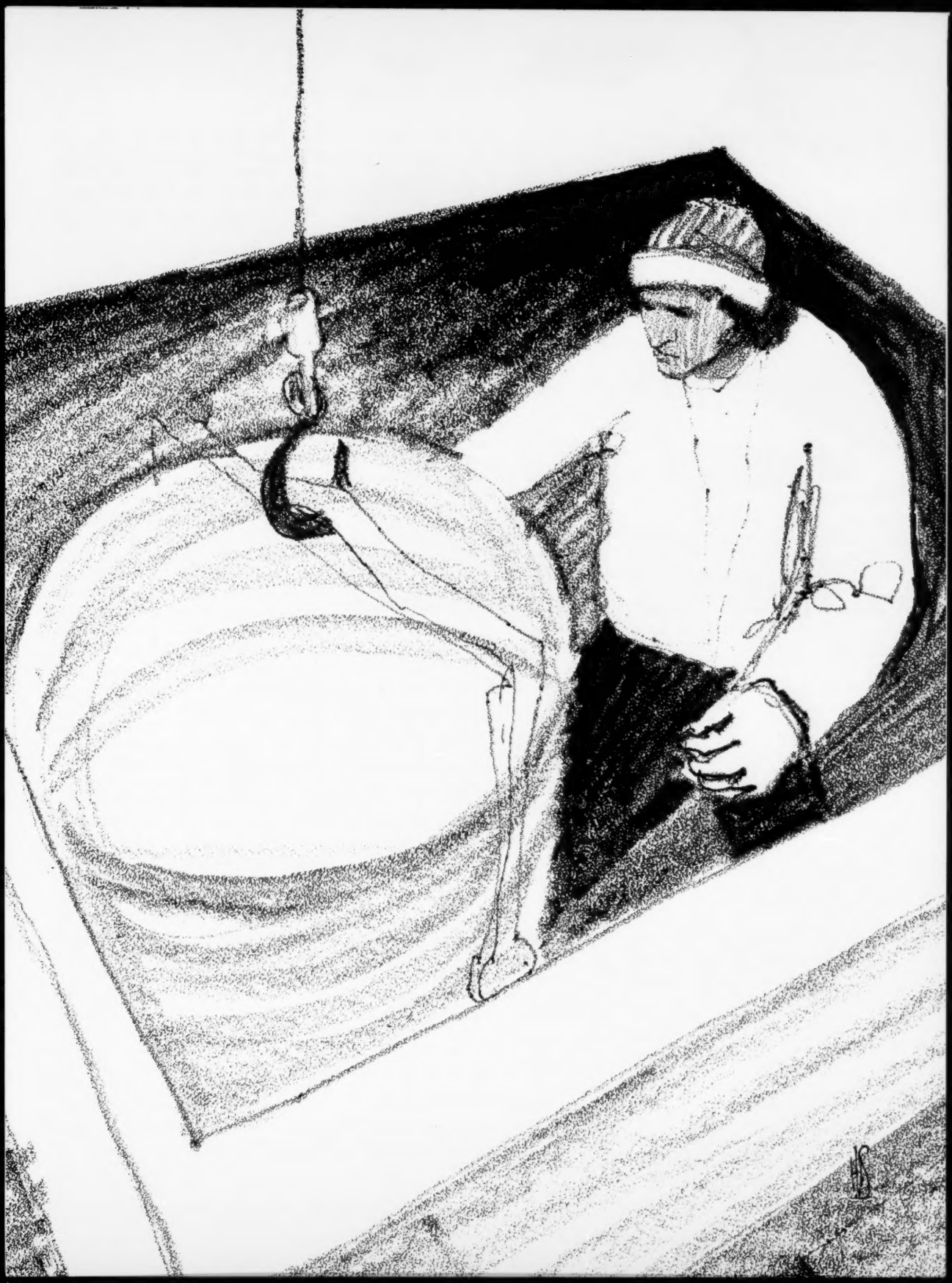
The fish are not butchered in the slaughterhouse. They are *dressed* up on deck, if at all. Possibly in the dim past, the naming of the slaughterhouse may have had some connection with fish preparation.

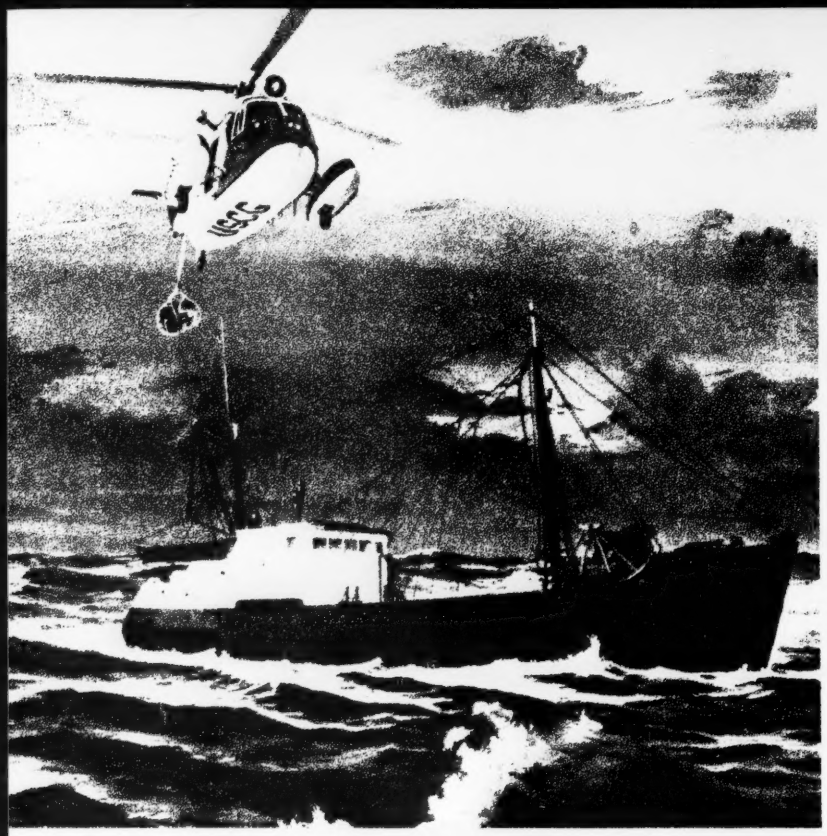
While unloading fish, do not stand under the open hatch when a sling-load is going up. The slings are strong enough, but often a single fish may slide out and give you a playful whack going by. The whack is a measure of the fish's weight multiplied by its velocity, and can be painful to say the least, or break something in your upper parts.

Washing the hold after unloading is important to the quality of the next load of fish. Residual slime and blood must be scrubbed out of the boards and the corners of the cleats. Most vessels follow the last rinse with a spray of disinfectant. Some vessels which ice fish now use plastic liners in the hold, which are removed each trip. Little washing is needed here.

As always, when working below with shipmates, do the best job of which you are capable. With most fishermen, it is an insult to have another go over the same surface or repeat the job just completed. Fishermen observe this nicety, but at times, rather than criticize another's job, they openly do it again and communicate in that way their opinion of the work.

Other instructions for particular jobs that need doing in the hold, such as cleaning sumps or opening the doors above the shelves in the skin of the boat, will be given to you. Each boat has its own peculiarities in these details. Once the instructions are given, it should not be necessary to repeat them next trip.





Your Medical Rights and Care

A fisherman is also a seaman, and a competent deepwater fisherman is as good a seaman as may be found anywhere. As a seaman, the fisherman has a right to free medical care in case of illness or injury. "Under a rule as old (as the maritime law itself) a seaman injured or sick while under articles is entitled to receive from the shipowner maintenance and cure: food, lodging and care."[1]

Medically, the responsibility of the shipowner was long ago eased by the federal government, and the seaman was therefore entitled to free medical care, including hospitalization, in a Public Health Hospital (the Marine Hospital), or equivalent. He is also entitled to "maintenance," a given sum of money per day, until his physician declares him cured and fit for duty.

If and when you need medical help, you must first of all see your skipper, because the skipper or his representative must sign a document attesting that you are indeed employed on board a fishing vessel.

On longline vessels that belong to the Fishing Vessel Owners' Association, and sail under an agreement with the Deep Sea Fishermen's Union, you are entitled to your full share of the trip on which you become ill or suffer an injury, regardless of whether you become unfit for work in the early part of the trip or near its end.

In any case, it is the duty of the skipper and of the delegate, if you have one on board, to inform a sick or injured fisherman of his rights and to see that he gets what he is entitled to, including proper medical attention.

While on the subject of medical care, let's mention some things you can do to keep doctor and hospital away. When at sea, take extra good care of your health. You are not a "sissy" if you do. You are pretty much of a fool if you don't. Pay special attention to the care of your hands. Keep your hands clean, don't let slime and gurry dry on your hands, because that will dry out your skin and cause cracks to develop. After washing your hands at the end of a long workday, use a good hand lotion or salve, working it well into the skin. A large tube of Johnson & Johnson Antiseptic First Aid Cream[2] or a bottle of rubbing alcohol should be part of a standard outfit for a deepwater fisherman.

Beware of fish wounds! There are no really poisonous fishes off the coasts of the Pacific Northwest, but fishes such as the stingray (California) and the ratfish (in all Northwest waters) can be bad enough. A wound inflicted by the spines from either of these may bring you a powerful case of blood poisoning, if not promptly and properly treated.

The ratfish carries a "dagger" as part of its dorsal fin. If stuck by that one in your foot or in your hand, get into the galley as fast as possible, fill a bucket with hot water, add a liberal amount of Clorox, Purex, or a drawing agent like epsom salts and soak your limb in the solution. Keep the water as hot as you can take it and keep soaking for at least 2 hours. Punctures from sculpin, spiny dogfish, or from any one of twenty-odd rockfishes found in our waters may also be dangerous and should be treated as described. Do not neglect a small puncture of your hide. Remember, most infections originate in a small, insignificant scratch or sore. Even the old-timers forget this at times.

The gnarled, calloused, knobby hands of an old fisherman are painfully acquired, but today such a mark of a vocation is no longer necessary

[1] "Federal Responsibilities for Medical Care of Seamen" by C. J. Simpson, Director, National Labor Bureau, San Francisco. 1955. Trade Printery, Seattle.

[2] Mention of trade names does not imply endorsement of commercial products by the National Marine Fisheries Service, NOAA, or the authors.

or desirable. Hands do acquire callouses from sliding gear through them. They get knobby and arthritic from long exposure to salt water, but this is no longer such a vocational affliction.

After several days of working with cloth gloves only, hands wet from salt water, fish slime, and blood, the fisherman awakes to another day with hands that are stiff and puffed up, painful to move, and any small cuts gape open as the skin is pulled taut from increased muscle tone caused by water saturation and swollen muscles. Buttoning the pants and the shirt is a slow painful process. The quickest relief is to put on those soaking wet gloves so the skin takes up water and softens again, and squeezing and working the hands will, within 20-30 minutes, make them pliable and painless to work with.

About 1951, a fisherman experimented with a thin rubber, surgical-type glove to be worn inside the cloth working glove. Yes, the hands still get wet but principally from natural skin moisture. But in the morning, the hands are not stiff and sore. Remarkably enough, small cuts now will heal while working on the fishing grounds. In the old days cuts on the hand chafed on the cloth gloves, and what started as a small skin cut, would, in 4 or 5 days of fishing, grow to an open sore, skin worn away at the edges. Bandages would not stay in place.

The rubber surgical-type gloves should not fit so tightly as to impede circulation in the fingers. They should be snug so that gear can be handled without the hands sliding about in the gloves when wet and so that the sense of touch is not dulled by folds of rubber. Some fishermen prefer long gauntlets on the gloves that will cover their wrists and keep them dry.

Two pair of rubber gloves will do the work of three pair, since a left-hand glove can be turned inside out and become a right-hand glove, and vice versa. Even a glove with a torn finger will protect the hand, and can be used if you have no spares. You will note, though, that the finger in that torn part of the glove will have some soreness from saltwater exposure. Take care of the rubber gloves by washing them clean inside and out at the end of the work day. Turn them inside out by rolling the gauntlet over the fingers and blowing up the glove like a balloon, with a sharp puff. When you awake in the morning, the outside will be dry. Reverse them again. They will slide on more easily if they are dusted lightly inside with talcum powder. Even corn meal and ordinary flour will do the job, though it looks like pancake dough when you remove the gloves at the end of the day.

Good care of your hands is important to both you and your shipmates because if you are crippled the extra work falls on your shipmates and this can slow the fishing and force the crew to work longer hours. You are issued only one pair of hands. They are your livelihood. Watch the old-timer who, at the end of the day, inspects his hands for unsuspected cuts. He carefully washes his hands, his wrists, and arms. Blood and slime can clog pores, create rash and pimples that turn into sores and become infected. From past experience, almost 50 percent of the first-trippers have hand problems caused by neglect, as a result of their hurry to get to the bunk for those few short hours of sleep. (Being so short, it's more like a nap, or a "kink" as some old-timers express it.)

Some men anoint their hands with lotion or salve, and all treat their little cuts with tincture of Merthiolate, rubbing alcohol, or other good disinfectant. A few Band-Aids in your kit will also be useful. Penicillin tablets are by prescription only, but keep in mind that they are not to be used as a preventative, ever. Use them at the intervals prescribed only *after* you get an infection, and know whether you are allergic to penicillin.

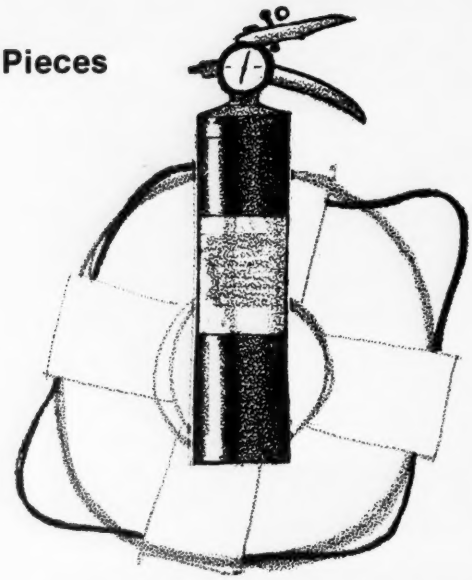
When washing wristers or cloth gloves, rinse well to get the worst of the blood and slime out. As a finishing touch, many old-timers wring out lightly, then toss them on deck and stamp hard with the heel of the boot, repeating this several times to force out all bacteria-laden slime and blood. Stamp on the end of the glove fingers first, though: glove fingers will pop like a balloon if the water within is forced toward the fingers with the first stamp. Repeat the process until the water wrung out is clean.

Not much can be added about foot care that has not already been said of the hands. Ill-fitting boots or socks that cause a slight discomfort initially may, by the end of several days, cause chafes and sores that are crippling. Few fishermen wear wool socks only next to the skin because of the fiber coarseness. As a result, many wear fine-knit cotton socks, inside the wool socks, or sheepskin liners. The socks should be long and drawn up over the pants leg, even pinned if necessary. Loose fitting boots, feet sliding about within, can cause socks to pull down and end up as a ball in the toe of the boot. Foot perspiration and lack of circulation will make the boot wet inside, and this is particularly true if long hours are spent in the ice, putting away fish. The cold of the ice causes an increase of condensation within the boot.

Some boots are insulated, some have built up insteps. They are all expensive, and you don't save anything on the cheap ones. They, along with other special fishing gear, are tax deductible though. Save your store bills to document your income tax returns.

No one objects to a man leaving the deck to take care of himself if he gets a knife cut, or a gaff hook punched in his leg, or a fish bone in his wrist. The slime and blood and the rust are rich in bacteria and a few minutes of doctoring can save much pain and lost time later. If you do have an accident, let your skipper know since the consequences have to be shared by all. This is especially true if the cause is from a broken or deficient piece of equipment on deck.

Bits and Pieces



You have now waded through quite a number of do's and don'ts. Nevertheless, scraps of information have, no doubt, been left behind. We'll see if we can pick up a few such bits and pieces.

Let's talk about your oilskins. They have, at times, been dubbed "the fisherman's uniform," a fit name and one of which no seafaring man need feel ashamed. Most work on deck is of such a nature that oilskins must be worn in order to keep reasonably dry. In point of fact, oilskins should be worn in all manner of deck work, wet or dry, because oilskins don't just keep you dry, they also prevent your fishing clothes from becoming too dirty too fast.

Besides, your oilskins protect you. A flying longline hook, or a "jagger" on an old wire rope can get a real good grip in your fishing shirt or pants. With oilskins on, you would stand a good chance of getting away from such an encounter scot-free. Don't wear too much clothing under your oilskins. A suit of oilskins conserves body heat very well. You should feel chilly when you first come on deck. It is time-consuming to remove the extra clothing when you begin to warm up from exercise.

If you go out in a dory or a skiff, whether for business, recreation, or salvation, wear your oilskins. You will be snug and warm when the fellow without oilskins is kept busy trying to control his chattering teeth. In case you should be forced to abandon ship, be sure to have your oilskins along when you make the final jump from the deck and into the lifeboat or life raft. Here is a case where your oilskin suit may well make the difference between your survival or your extinction.

There usually will be some provision for drying your clothing, which at the end of the watch on deck will be damp from perspiration and from condensation inside your oilskins. And those oilskins, along with gloves and wristlets (or wristers) should be washed before hanging to dry.

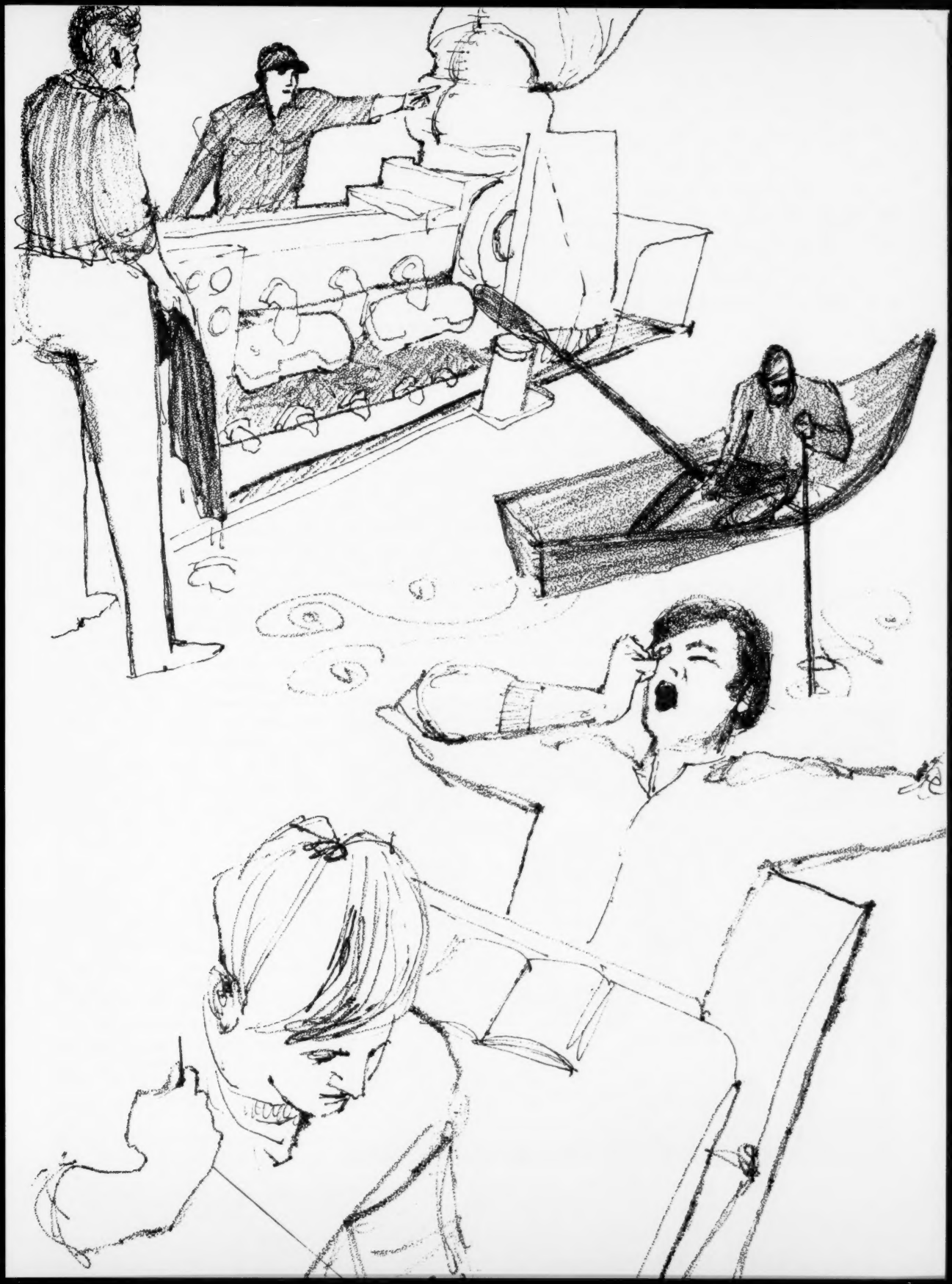
Drying wet, heavy fishing clothes can be quite a problem on a fishing boat, especially on a smaller and/or older one. No cook worth his salt will tolerate drying clothes around his galley range. This is not meanness; it's common sense and entirely proper, because the range and its vicinity is where the food is prepared. But exceptions may be made at night when food is not being prepared.

Some engine rooms are roomy enough so that the engineer will let crewmen use certain parts of it as a drying room. Many engine rooms, however, are forbidden territory, for good and valid reasons. If you do get permission to hang your wet clothes in the engine room, you must, of course, hang your things in the spot which the engineer (or skipper) has pointed out to you and nowhere else! A garment of whatever kind, hung in the wrong place, may be sucked into an air intake, caught by a belt or a turning shaft, and cause all manner of damage to the engine or to other machinery, to say nothing of what happens to your clothes.

What if you should be really unlucky and get a big tear in your fishing shirt or fishing pants? You can't just toss it away and get a new one because the nearest outfitting store may be hundreds of miles away. So what do you do? You mend it, that's what. You have your sewing kit and plenty of woolen yarn. A herring-bone stitch with heavy (double or more if needed) woolen yarn will make a very respectable repair job. With a little practice you'll be able to make it a very neat job, too. For more elaborate mending or patching there are plastic menders on the market.

Do you know how to use a pair of oars? To row a boat, that is? If not, go rent yourself a 14- or 16-foot skiff, or better still, borrow an old dory, and practice rowing until you learn how to handle a pair of oars effectively. A fisherman/seaman who is unable to propel a rowboat by means of the oars if and when the conditions demand, is a pitiful sight to behold and a most foolish looking one to boot. Learn to use a pair of oars. That ability might save your life, if you should suffer a shipwreck.

It may not be probable, but it is possible, that at some time in your fishing career you may have to use a small boat to survive, or an inflatable life raft, or a life preserver, or a fire extinguisher. Take a good hard speculative look at these items and ask some questions. Don't take "no" for an answer; it's your life that you're concerned about.



Attend a life raft inflation demonstration. Try on a life preserver, and be able to find one on your boat in the dark. Know where the fire extinguishers are and how to use them. When these items are needed, they are needed fast. You may be the one who has to make the decision. It is too late then to learn how they are used. Organized emergency training of this kind for fishermen is almost wholly non-existent now, so you will have to put the facts together yourself.

In some fisheries, especially in the year-round fisheries, such as otter-trawling, a certain number of harbor days are unavoidable, due to the weather on the North Pacific coasts. Do you enjoy reading? If so, be sure to bring plenty of reading material with you when you go to sea. Long harbor days will seem ever so much longer if you run out of reading matter. Remember, the friendly public library is a long way off, and there will be no newsstand close at hand, either!

If you are a fisherman who uses reading glasses only, you are more fortunate than the man who must use glasses on deck. Fog, rain, and spray make it difficult to see clearly, and many anti-fog treatments on lenses have been tried with varying success. If eyeglasses are necessary, a lanyard from one bow to the other, passing around the back of the neck or head, is a valuable assist to prevent their loss if knocked off.

There are other fishermen who have eye corrections which can be remedied by contact lenses. This is an ideal answer if you can use them, but it adds to the personal chores, since they must generally be removed before going to the bunk.

There are other personal handicaps that can be overcome. One such happened to be a one-legged man with an articulated artificial limb. He was on the boat for a week without the skipper knowing of it. One day, his leather harness got wet, and during the off-watch it was hung up to dry. The harness dried, but it shrank so that the leg could not be "reinstalled" when the man got up next morning. The truth was out and the skipper was speechless, for once.

You may well have to seek shelter in an anchorage that may be far from safe as a harbor, but the only one within reach. It may be exposed to the wind blowing at the moment, or to a measure of ocean swells, or to both; or the bottom may be too hard or too soft to provide reasonably good fastening for the anchor. In such harbors you have to stand "anchor watch" during the night. When an anchor watch is necessary, each man takes his turn in the same order as he takes his trick at the wheel. Your job on anchor watch is, of course, to watch out for drift of your vessel and to call the skipper the moment you notice that she is dragging her anchor.

If there is a radar set on board, the job is easy enough, since you can read any change in position off the radar screen. Without a radar set, much more wide-awake watchfulness is required. In that case, pick yourself a couple of "points of reference." These must be somewhere abeam. A couple of mountain peaks, or a peak and a hill, a couple of tall trees, one tree and one mountain peak, or whatever is available. If one lines up on the other, you have a *range*, and if one moves in relation to the other you are drifting.

Again on the beam, sight a landmark across the compass and note the direction of bearing. The boat may swing about, but the compass bearing should remain the same. If it doesn't, you are drifting. Remember, a range consists of two landmarks in line (and a compass bearing if the nearest one is quite close). A bearing is a compass reading on a very close landmark.

These telltales let you know when the boat drifts. Check them constantly. Another telltale, on rocky bottom is a sliding anchor which telegraphs a rumble up the cable when it moves. Don't forget, check the wire on the winch, and make certain that the "drift" is not caused by a loose brake —the wire paying out. Call the skipper over any uncertainty—the quicker the better.

How Do You Get Paid?

As a commercial fisherman you'll not be on a payroll. You'll get no salary, no wages; your only income will be your share of the catch. There are, at this time, several methods of figuring shares. We shall have a look at three of them, but there are almost as many others as there are fisheries.

1. In the longline fisheries, the vessel takes a certain percentage of the total earnings (called gross stock) as its share. What is left is called net stock. From net stock one pays the bills for groceries, fuel, ice, bait, and worn-out (condemned) fishing gear. What now is left is divided equally among the entire crew, the skipper sharing equally with the rest of the men.

2. In some fisheries, such as the purse seine and the otter trawl fisheries, the vessel collects a certain percentage of the stock after specific gear expenses are paid, so that the crew does not pay into the maintenance of the trawl or the seine used. When the vessel's share has been deducted, the other bills (groceries, ice, fuel) are paid, and the remainder is divided equally among the crew, the skipper being a crew member for this purpose, although most non-owner skippers also collect a percentage of the boat's share as a commission.

3. A few vessel owners, mostly in the pot fishing fleet, and some few in the two-man trolling boat fleet, prefer to give the crew a certain percentage of gross earnings and keep the rest as the vessel's share. The vessel, or its owner, then maintains all fishing gear and is responsible for all bills, including bills for food consumed during the trip, or season. Whatever virtues or drawbacks this method of sharing may have, it certainly does eliminate arguments about which bills belong to crew expenses and which bills belong elsewhere in the settlement. There are inequities in many share systems, but tradition makes change difficult.

If you enter into a fishery where the fishermen are organized, join the union. Not only should you join the union, you should become an active, working member; that's how you can help keep your union strong, useful, and democratic. When the crew belongs to a fishermen's union, there will be a "delegate" on the vessel, elected by the crew to his job for the current fishing season.

The delegate is your official spokesman, your go-between. Representing the crew, the delegate checks all bills, then makes them available for the crew's scrutiny. The delegate also assists the skipper in the weighing of the catch, for the trip or for the season as the case may be, and sits in (with the skipper) when the vessel's accountant works out the settlement and divides the money into shares. Such settlement may be for each trip, as in the longline and trawl fisheries, or it may be on a seasonal basis, as in the salmon and king crab fisheries.

Since the share system means generally that both crew and vessel share some expenses or all, the settlement sheet should be understood by you. The settlement is yours also. Here are some tips.

1. Know just which expense items are boat, crew, or mutually shared.

2. Pay particular attention to your share. Note if all your bills are deducted correctly and that the settlement sheet agrees with the numbers on your check stub. And do it now. Once the share is apportioned and the money banked, it is very difficult to make changes. Generally, corrections must wait until the settlement on the following trip.

No one is going to tell you how to spend that hard-earned cash, but it is well to keep in mind that with long trips and short seasons, that share may give you a false sense of prosperity. In the armed services, there was an old saw that the pay was $200 a day—once a month.

Does the delegate participate in the settling up because it is assumed that the skipper or owner will try to cheat the crew? Not at all. Rather, the delegate is there because two heads are better than one; he is there simply to help prevent mistakes. The writer has served as delegate on a number of vessels and participated in a good many settlements. Not once—repeat—not once during the several years of such service has he met up with an attempt from the skipper/owner's side to cheat the crew. He has, however, been a party to discovering a number of would-be mistakes, some of which went in favor of the crew, mind you!

The moral? Join your union, elect your delegate, and see to it that he keeps his nose pretty close to the grindstone. Know the share system on your boat.

Shore Leave

You are a fisherman and a seaman and you want your shore leave. To take a trip ashore is your right, of course, whenever wind and weather and fishing and running between fishing grounds permit.

You may want to have a snort or two during your shore leave, and that also may be a needed easement. One man enjoys having a drink, another man enjoys *not* having one; both have a perfect right to enjoy whatever they prefer, up to a point. And the point is right here: your enjoyment must not interfere with the rights of the next fellow.

Before you step ashore, ask the skipper about leaving time. It is the skipper's duty, really, to announce the exact hour at which he intends to leave port, but if the skipper does not do so, ask him. And make certain that you have the hour well fixed in your mind.

Once you know the hour of departure, you have no excuse whatsoever for being late. Make sure that you arrive on board the vessel 5-10 minutes before the announced leaving time. Remember, if you don't show up on board on time, the vessel and its crew will be forced to wait for you, and you have no right at all to make other people wait for you, especially when such waiting is costing the time of both vessel and crew, which means fishing time, which again means loss of earnings. The adage "time is money" is more true in commercial fishing than in nearly any other kind of work because the fish (like the tide) wait for no man. Ergo: be back on board in good time for leaving port.

If you have "hoisted a few" while ashore, be extra careful when approaching your boat. The dock may be slippery, the tide may be out, and the deck of your boat a long way down. Keep a good, solid grip on the stepladder, as you slowly descend from dock to deck.

If several boats are tied up abreast, and your boat happens to be on the outside, be careful when crossing the in between boats—a hatch, or a manhole, may be open! Remember, if you suffer an injury while on a "lee tack," you may well lose your privilege of free medical attention. The law says: "Disability benefits arising from injury or disease contracted on shore leave is included, *unless due to the seaman's willful misconduct or deliberate indiscretion.*"[1] And getting stewed is a "deliberate indiscretion," surely. So, be careful!

If you happen to have the first wheelturn when leaving port, you must, of course, be dead sober when returning from shore leave. An inebriated man at the wheel of a vessel

[1] Simpson, op. cit.

can cause untold amounts of damage and of human misery. No seaman, needless to say, can assume the responsibility for the safety of vessel and crew when less than sober.

After unloading a trip, the boat is washed down and tied to a float or a dock. Then the boys clean themselves up while the skipper and delegate are at the store "settling up," and getting the checks ready. When these two stalwarts get back with the checks and some cash for those who want to go uptown, the boat will empty of life except for one or two who want to write a letter or perhaps take a nap before that evening uptown. If several days are spent at the docks before going out again, and especially if you are not in your homeport, there will be many trips up on the dock.

There will also be many trips to the galley or fo'c'sle of another boat to visit friends and swap stories and "get the latest." This is a favorite pastime and most enjoyable, to meet old shipmates and make new friends, trading information and gossip, and goes on whether you are taking your ease at the galley table, overhauling gear on the deck, or up on the dock. You are part of a club.

But even socializing is not an unmixed blessing. You may be tied up two or three boats away from the dock or the float, and the deck arrangement of gear and equipment will differ on each boat. There will be something to stumble against on an unfamiliar deck when you return in the middle of the night. Some boats may have carelessly left the hatch open, and the deck lights might be out, or too dim to see well on deck. Gear and stays may hang down from overhead. The inside boat will have fenders out, and therefore will be a foot or two out from the float whose planks may be rotten or slimy from a combination of rain and mossy growth.

If lying at a dock, you may have a long climb up the ladder when the tide is out, and the ladder will be slippery with seaweed. Some ladders of wood will have broken or loose rungs. Metal ladders are best but may be severely bent from boats rubbing against them. Note particularly if there is a handhold at the top of the dock stringer, to pull yourself up with. Several rungs down, the ladder may be close to a dock timber, giving you only a toehold.

This is the "jungle" in a fishing town. To be alert is to survive. Many fishermen stack the odds further by carrying within a "tankful" of whiskey back to the boat. Those who stepped, slipped, jumped, and didn't bounce, are either no longer with us or carry the scars of their blunder. Most docks are in good shape, but make a careful note of the path you follow when leaving the boat. The open hatches, the broker ladder (which you may not see when stepping ashore at high tide) should be a big question mark in your mind when you return that night and see the mast tops of the boat level with the dock.

The safest grasp on the ladder is its sides, not the rungs, although at the top the ladder sides may be fast to the timbers so that you must hold the rungs. As you reach up, be certain your next handhold is secure before letting go the other hand. Step on the ladder with the rungs under the instep, not on your toes. Use special care on ladder and dock if they are wet. If you do drop off the ladder, the chances of landing between the boat and dock are about 50-50, but you will suffer less damage if falling in the water. Many have not survived this drop because they hit their heads on the boat rail as they went by, or were squeezed between the boat and the piling. If in the water, keep away from the outside of the piling. Your bones will find 20-100 tons of boat to be a rather irresistible force. If unable to climb out, don't wear yourself out. Hang on and holler like hell. Best precaution: travel in pairs if possible.

From the dock, uptown and back, it's all yours. Have a good time and good luck.

Conclusion

The choice (or necessity) of being a commercial fisherman today is basically a way of making money. However, there are other trades where more or less income can be generated and more fringe benefits received. But there is a presumption or belief that when equivalent earnings are available elsewhere, a person who goes commercial fishing by choice is looking for other values.

One of the ideas advanced and generally agreed to by some economists, sociologists, and fishermen themselves, is the idea that fishermen have more than an ordinary amount of freedom —of independence. This is a generality that varies in truth from fishery to fishery. For precision then, reduce this to the northeast Pacific fisheries, and to those vessels in which a crew of one or more is employed besides the skipper.

Trawling for bottomfish and shrimp; longlining for halibut and black cod; potfishing for dungeness, king, and tanner crab; purse seining for salmon; and to some extent, trolling for salmon and albacore, are the most typical fisheries of the area. Others, like scallop dredging or potfishing for fin fish, are minor fisheries now. These fisheries generate fair to very good incomes, and the stories of big seasons have a basis in fact. But they are exceptional in most cases, and do not reflect the average.

Since the seasons are quite short in many of these fisheries, most incomes are quite high considering the real time spent fishing. Most of the time this is an advantage over shore wages only if the fisherman has a skill to employ while ashore during the off-season, and to which he can come back each year. Many do. Some, without these other skills, resort to

unemployment compensation. Others drift away from fishing because of the uncertainties, because of a bad year.

Some full-time commercial fishermen follow the trade year-round by moving from summer fishing to a winter fishery, such as longlining in the summer and trawling in the winter. But this by no means keeps all commercial fishermen busy year-round. Therefore, an element of the freedom we are talking about can be a change, the cycling from one fishery to another, or the cyclic balance of a comfortable shore job in winter and a summer job at sea. This is a stimulating arrangement, a kind of freedom most wage earners do not have. The extra income from fishing seems to pay for the security foregone in building seniority in a permanent job ashore.

The prerogatives of seniority, of the fringe benefits called conditions ashore, are not a totally unmitigated good. The fisherman surrenders these fringe benefits in return, not for just a better income at sea but for a freedom *from* something else he is leaving behind. These are the negative aspects of his life ashore, and the list is considerable, varying according to the values of the man, his conditioning, his tolerance.

Some of these negatives are:

Punching a time clock: the hourly payment for a physical presence, like the rent on a house or a car. Some view this as a degradation.

Nit-picking, over-the-shoulder supervision: the boss is paid to be boss, so his visibility as a supervisor is kept high.

Restriction of capabilities: the frustration of working at a pace below one's capabilities.

Regimentation: one body among many, last name first; saturation seating on the bus and the plane; waiting in line for a theater ticket, unemployment check, or to buy a hamburger.

In return for an escape from these negative factors and others, the fisherman pays what appears to be a high price in hardship, long hours, and a restricted life at sea. It is not entirely true to say that he has greater freedom because he submits to a very tough taskmaster who is demanding and getting more from him than is ever attempted ashore. As a consequence, to say a fisherman has greater freedom is not so true as to say he has *other* freedoms, different freedoms. On balance, he pays for this independence by submitting to a harsher discipline and does so willingly because it is largely self-imposed. Not everyone will pay the price, and it is at this point of awareness that some men will either turn to another trade or remain fishermen.

It is not entirely true to say that at sea one of the fisherman's hardships is to be deprived of some shoreside social amenities. On the contrary, because of the absence of these obligatory amenities, he is more free to do the job at hand without any conflict, and to the full limit of his capabilities. In the crew, he is with shipmates of like mind and capabilities. The self-imposed harness does not gall like the limits of work imposed in a shore job.

If any policing or criticism of the quality of work is needed, it comes mostly from shipmates rather than the skipper. Minute supervision is not wanted, nor is it generally needed. It bears repeating that, on a well-run vessel, few words are needed. Individual merit is recognized and acknowledged. The fisherman objects to being "checked up on" and to do a job over that has just been completed by another is offensive to him. But if there is a necessity for re-doing that job, words of explanation are not needed. Actions communicate thus without words, with less likelihood of giving or taking offense. The signals are understood.

Probably the most singular and unique feature of fishing is the extremely long hours. A 12-hour day is virtually a minimum; from 16 to 18 hours a day is common. The reward is what goes in the hold, and the consequent days off in town. It is interesting to note that some industries ashore are beginning to compress the 40-hour work-week into 4 days and are finding that many workers like and support the idea. There are possibly other "discoveries" of like nature, if management would take the trouble to look at and live the part imposed on their work force.

A man's capabilities aren't limitless, but when working at or near limits of physical endurance, it is surprising how far these limits can be extended and how much personal satisfaction this generates. But a man is not pushed there and cannot be pushed there. He is pulled by the incentives of more pay, recognition of personal worth, and the satisfactions in the job. A singular aspect of shipmates in a crew is that, even years after having been together, there seems to be a personal regard for one another that is not generally accorded a colleague on a shore job.

Yes, there is freedom in being a fisherman, but it is a trade-off inasmuch as he must also submit to restrictions and limits he does not have on shore. The foregoing details of living on a fishing vessel, the faint outlines sketched here, are not complete because the variations are nearly as great in number as there are fishermen.

The fishing industry doesn't make men, it wants them. What is expected of you, is a measure of what you *may* get in return. Fishing isn't harsh, but it very firmly rejects any fudging. After living together for weeks in the same fo'c'sle, the social varnish erodes. The whole man, whatever he is, is exposed. You.

Good luck, good fishing.

MFR Paper 1066. From Marine Fisheries Review, *Vol. 36, No. 6, June 1974. Copies of this paper, in limited numbers, are available from D83, Technical Information Division, Environmental Science Information Center, NOAA, Washington, DC 20235.*

U.S. Urges Japanese Action to Conserve Pacific Salmon Resource

The Commerce Department's National Oceanic and Atmospheric Administration has expressed deep concern that Japan has not taken any effective action regarding the operations of its high seas gill net fishery in 1974 on what is expected to be one of the lowest runs of Bristol Bay (Alaska) sockeye salmon in history. Cooperative action by the Japanese is considered imperative.

Members of the U.S. Section of the International North Pacific Fisheries Commission and others met in Seattle, Wash., in February to review the situation in light of U.S. concern for the resource. Those attending included U.S. Chairman Elmer E. Rasmuson, Anchorage, Alaska; Professor Donald L. McKernan of the University of Washington, Seattle; Robert W. Schoning, Director of NOAA's National Marine Fisheries Service, Washington, D.C.; Harold Z. Hansen, representing Alaska's Governor William Egan; and staff members of the Alaska Department of Fish and Game and NMFS who provided technical data.

Mr. Schoning said he was keenly disappointed at Japan's continued failure to respond in a meaningful way to the critical conservation needs which he said were clearly enunciated at a meeting of the full Commission in Tokyo last November. INPFC comprises representatives of Canada, Japan, and the United States; and one of its primary missions is to ensure the maximum sustained productivity of the fishery resources of the North Pacific.

The Bristol Bay sockeye run in 1974 is forecast to be about 5 million fish, but the minimum number needed for brood stock to ensure maintenance of the resource is about 9.5 million fish, almost twice the number expected to be in the run. The United States is now planning a virtual shutdown in the U.S. harvest of sockeye salmon in Bristol Bay in 1974.

The State of Alaska has announced plans to impose severe restrictions on all fishing for sockeye under its jurisdiction, including prohibiting any directed commercial fishery in Bristol Bay this year with the possible exception of a small fishery in Togiak, an area at the northern edge of Bristol Bay. Limited numbers of sockeye may be taken incidental to fisheries for other salmon species in the Bay, but no large runs of any species are expected in 1974.

In addition, in an unprecedented move, the Alaska Department of Fish and Game has prohibited sport fishing for sockeye and sharply curtailed the sockeye subsistence catch in the Bay by natives in 1974.

Schoning said: "There is ample biological evidence to indicate the urgent need for strong conservation measures in the salmon fisheries." The Japanese high seas catch of Bristol Bay sockeye salmon for the past 18 years has averaged about 2.4 million fish a year. This represents about 22 percent of the total annual harvest of Bristol Bay sockeye during that period. The United States feels this harvest must be essentially eliminated in 1974.

Schoning said: "In 1974 it is not a matter of catching a harvestable surplus, but one of possibly saving from extinction a critically low run of the sockeye salmon resource that has been and, with proper conservation measures, can again be potentially the largest in the world."

Director Schoning said that Japan's failure so far to take meaningful action to save such a valuable resource points out the importance of the U.S. fisheries position in the Law of the Sea negotiations. In that forum the U.S. position is that in order to ensure effective management, anadromous species such as salmon and steelhead should be under the jurisdiction of the host State (the State in whose waters spawning takes place) as far offshore as they range. Due to the biological characteristics of these stocks, the United States feels that rational management can best be accomplished if the stocks are harvested in coastal waters, where separate runs can be recognized, instead of in waters far out on the high seas.

NOAA Selects Boston Man as General Counsel

The appointment of William C. Brewer, Jr., a partner in the Boston law firm of Hill and Barlow, as General Counsel of the National Oceanic and Atmospheric Administration, was announced today by Dr. Robert M. White, NOAA Administrator.

Brewer

Mr. Brewer brings to the Commerce Department's environmental agency a broad background in corporate and international law, and in education. He was graduated from Phillips Academy in 1939, Williams College in 1943, and from Harvard Law School in 1949. He served in the Army's 10th Mountain Division in 1942 and 1943; as a cryptanalyst in the Signal Security Corps from 1943 to 1945; and was discharged as a second lieutenant in 1946.

Upon graduation from Harvard Law School, Mr. Brewer became General Counsel of the Mutual Boiler and Machinery Insurance Company. In 1953 he became a partner in the law firm of Peabody, Koufman and Brewer, which was succeeded by the firm of Hill and Barlow in 1965.

Since 1968, Mr. Brewer has served as adjunct professor at Boston College Law School, teaching coastal zone management and international business law. He has served as a director of several companies, and has written numerous articles for legal journals.

He served as chairman of the Manchester, Mass., Personnel Board from 1960 to 1963, and as a selectman in 1963 and 1964. He has been a director and executive committee member of the Beverly, Mass., Hospital since 1965.

Mr. Brewer was commodore of the Manchester Yacht Club from 1956 to 1967, and rear commodore of the Cruising Club of America from 1965 to 1967. He has been chairman of the national membership committee of the Cruising Club of America since 1969. He is an aircraft pilot.

Mr. Brewer married the former Ann Wickes in 1948. They have three children: Gale, 22, at Columbia School of General Studies; Anita, 20, at Williams College; and William C. III, 17, at Concord Academy.

Commerce Department Awards First Coastal Zone Grants to Oregon, Maine, Rhode Island

Commerce Secretary Frederick B. Dent awarded $634,547 in Federal grants to Rhode Island, Maine, and Oregon to assist the states' development of coastal zone management programs on March 14, 1974. The grants were the first to be made by the National Oceanic and Atmospheric Administration under the Coastal Zone Management Act of 1972, to encourage effective management, beneficial use, protection and development along America's sea coasts and Great Lakes' shores.

The grants include $154,415 to Rhode Island, $230,000 to Maine, and $250,132 to Oregon. The individual states are contributing a matching share of the coastal zone management funds which, by law, must amount to one-third of the total program cost.

Large portions of the grant to Rhode Island's Department of Administration will support the activities of the state's Coastal Resource Management Council and the University of Rhode Island Coastal Resources Center. The state's first year of work under the coastal zone grant will include a resources inventory, a commercial fisheries survey, a sand and gravel extraction study, lease fees structure study, environmental impact guidelines, a socioeconomic baseline data compilation, shoreline use guidelines, a salt marsh quality analysis, an energy requirements study, a unique natural areas plan, a marine recreation study, and legal studies.

In Maine, the grant is awarded to the Office of State Planning and will support the work of the Departments of Marine Resources, Inland Fisheries and Game and Conservation in addition to the University of Maine, the Historic Preservation Commission, five Regional Planning Commissions, and the Portland Council of Governments. The first year work program is based upon three major program elements each comprising several tasks. The first element, a land and water capability analysis, includes aerial photography and interpretation, a mapping program involving resource interpretation and atlas maps, natural resource data compilation, socioeconomic data analysis and planning, planning reports preparation for the "Down East" region, and a critical areas program for southern coastal Maine. The second element involves studies of fisheries and aquaculture and characteristic biological assemblages, and ponds and wetlands. It also includes socioeconomic data analysis, lake resource analysis, estuarine classification by physical characteristics, hydrology, surficial and bedrock geology data compilation, and a historic and archeological inventory. The last work element is a local and regional citizens participation program which includes a resources inventory, alternative futures preparation, and a public opinion polling program.

Administered by the Land Conservation and Development Commission, a major portion of Oregon's grant will support operations of the state's Coastal Conservation and Development Commission. The year's work program includes the development of alternative implementation programs for the coastal zone management plan, an evaluation of land and water use development pressures on coastal natural resources and a study of planning and regulation in the coastal region. Also planned is a series of resource inventories covering coastal fish and wildlife, estuaries, lakes and streams, floodplains, coastal shorelands, geological hazards, and uplands, including an analysis of visual assets of the coastal zone and a study of water-related opportunities. Final elements include collection of basic environmental data, the development of recommendations for an information storage and retrieval system, and a public information program.

Stevenson Heads NMFS Southeastern Region

William H. Stevenson, 46, has been named Director for the Southeast Region of the National Marine Fisheries Service, a unit of the Commerce Department's National Oceanic and Atmospheric Administration. Headquartered in St. Petersburg, Fla., the Southeast Region is responsible for certain Federal fisheries activities in 17 Gulf and South Atlantic States plus Puerto Rico and the U.S. Virgin Islands.

Stevenson

Mr. Stevenson served as manager of the NMFS Southeast Fisheries Center's Fisheries Engineering Laboratory located at Mississippi Test Facility, Bay St. Louis, Miss., since September 1970. Among his most recent experiences was directing the fisheries functions of Skylab and Earth Resources Satellite Technology programs. Prior to heading the Fisheries Engineering

Laboratory he was Chief of Exploratory Fishing and Gear Research in Washington, D.C. Mr. Stevenson succeeds Jack W. Gehringer, who was recently named Deputy Director of NMFS in Washington, D.C.

A native of Philadelphia, Pa., the new Regional Director is a graduate of the University of Delaware with a bachelor of arts degree in zoology. He has been a Federal employee since 1962, and served in Recife, Brazil, from 1966 to 1968 as an advisor for fisheries development to the Government of Brazil. Earlier he was manager of the University of Delaware Marine Biological Laboratory. From 1953 to 1962 Mr. Stevenson worked in the fishing industry on gear development and resource assessment along the Atlantic coast.

He is a member of a number of professional societies including the Marine Technology Society, the American Fisheries Society, the Mississippi Academy, and the American Association for the Advancement of Science. He has received several awards for superior performance in government, and has published about a dozen papers dealing primarily with remote sensing and fishing gear development.

NMFS Names New Enforcement Chief

The Commerce Department's National Oceanic and Atmospheric Administration has announced the appointment of Morris M. Pallozzi as Chief of the National Marine Fisheries Service Enforcement and Surveillance activity.

Pallozzi

The program's responsibilities include the development and activation of policies and guidelines concerned with NOAA activities in the highly complex field of international and domestic fisheries regulations; interaction with State and other Federal programs to facilitate establishment and enforcement of measures surrounding the management and conservation of marine resources; and significant contributions to the development and maintenance of domestic and international programs related to marine resource conservation and protection.

Enforcement activities embrace regulations that affect the activities of both domestic and foreign fishing fleets operating in U.S. waters and national law that bears on the protection of endangered and threatened species of living marine resources. Surveillance responsibilities include the collection of data related to foreign fishing activities off U.S. shores. Implicit in all NMFS enforcement and surveillance work is close cooperation with other government agencies.

Mr. Pallozzi comes to NMFS from positions of progressively greater responsibility as an attorney with the U.S. Treasury Department, which he joined in 1963. His first three years there were devoted to investigatory work related to bank trust departments in several states. The following five years were spent in customs law specialization, with emphasis on the legal interpretation of maritime traffic regulations. During the past three years, Mr. Pallozzi served as a customs law adviser and coordinator for special projects in the field of domestic and international commerce.

The 35-year-old attorney is a native of Paterson, New Jersey, and a graduate of Seton Hall University. Mr. Pallozzi earned his Juris Doctorate degree at the University of Maryland Law School in 1963, and was a student of Admiralty Law at George Washington University's Graduate School of Law during 1970 and 1971. He is a member of four bar associations, a past president of the Customs Lawyers Association, and is associated with several civic, professional, and academic organizations.

Spilhaus Will Serve As NOAA Consultant

Noted scientist, inventor, and author Dr. Athelstan Spilhaus has been appointed special consultant on oceanic and atmospheric programs to Dr. Robert M. White, Administrator of the Commerce Department's National Oceanic and Atmospheric Administration.

In his position, Dr. Spilhaus will conduct studies, carry out special assignments, and give counsel on NOAA activities in ocean-atmosphere monitoring, Sea Grant, oceanic research, fisheries, and coastal zone management.

Spilhaus

Dr. Spilhaus, known as the "Father of Sea Grant" owing to his concept for the name and activity that later came to be NOAA's National Sea Grant program, has most recently been a Fellow at the Woodrow Wilson International Center for Scholars of the Smithsonian Institution. Formerly President of the American Association for the Advancement of Science (1970), he has also been President of the Franklin Institute (Philadelphia) from 1967-1969, and Dean of the Institute of Technology, University of Minnesota, 1949-1967. He is the inventor of the bathythermograph, a basic internationally-known oceanographic instrument, and the Spilhaus Space Clock. He is a prolific author of both popular and scientific articles.

Athelstan Spilhaus was born in Cape Town, Union of South Africa, and received a B.Sc. from the University of Cape Town in 1931. He obtained an M.S. from the Massachusetts Institute of Technology in 1933, a D.Sc. from the University of Cape Town in 1948, and has received ten honorary degrees from universities in the United States and England. He became a naturalized U.S. citizen in 1946.

Dr. Spilhaus began his public service with the U.S. Army Air Corps, 1943-46, during which time he contributed to the development of meteorological equipment including radar and radio upper wind finding instrumentation, work for which he was awarded the Legion of Merit in 1946. He was Scientific Director of Weapons Effects of two Nevada Nuclear Tests in 1951, and has received Presidential appointments from Presidents Eisenhower, Kennedy, and Johnson. He was a member of the National Science Board from 1966-1972.

Whiting Gutting Machine Found

Experimental results at the NMFS Atlantic Fishery Products Technology Center have shown that there is a commercial machine available to remove completely the guts and black belly lining from headed whiting, prior to further processing. The machine can clean whiting up to one pound and with minor adjustments, be made to handle larger fish. Recoveries of between 66-81 percent have been obtained from headed whiting, depending upon size.

For further information or for a demonstration of the machine, contact Joseph M. Mendelsohn or Thomas J. Connors at the NMFS Atlantic Fishery Products Technology Center, Emerson Avenue, Gloucester, MA 01930 (Telephone: 617-283-6600).

Atlantic Squid Studied

As part of the New England Fisheries Development Program a commercial fishing vessel, the *Valkyrie*, of New Bedford was chartered early this year by the National Marine Fisheries Service to demonstrate fishing and measure production rates during fishing for long-finned squid, *Loligo pealei* off southern New England. U.S. interest in squid fishing has grown since 1968 when the Japanese began experimental fishing for squid off New York.

Since that time, activity in squid harvesting has progressed rapidly. Early in 1974 there were over 30 foreign vessels fishing south of New England for squid. Most of the fishing for long-finned squid by foreign vessels takes place near the edge of the Continental Shelf during the cooler months (December-April) when the squid have aggregated there to escape intolerable temperatures inshore. Surveillance observations and information from other sources indicate that the catch rate by the foreign fleet, most of which are large freezer trawlers with over 2500 hp ranges from about 4 to 12 tons per day.

The *Valkyrie*, a 100-foot stern trawler with 700 hp, was chartered for four fishing trips during January and February. During 24 days of fishing, 223 two-hour tows were made with high-opening bottom trawls. Over 168,000 pounds of squid were captured at an average rate of 380 pounds per fishing hour. The daily catch rate was 3.5 tons per day for squid plus significant amounts of summer flounder, tilefish, butterfish, monkfish, and scup. Most of the squid were landed at New Bedford and sold either to the "fresh" market or frozen for later sale in both domestic and export markets.

The experience now provides some production and market data which will better enable the fishing industry to evaluate potential use of this unique resource. Under ICNAF allocations the U.S. is authorized to harvest 5,600 tons of squid from North Atlantic waters. The 1973 catch was less than one-third of this amount.

In addition to squid, the New England Fisheries Development Program is looking into development of other resources not fully utilized by U.S. fishermen, such as offshore crabs (red and Jonah) and fish species discarded from trawl operations. The program was initiated in 1973 in an attempt to offset the reduction of available resources as a result of overfishing.

Foreign Fishery Developments

ROK Fisheries Show "Significant Advances"

The Republic of Korea (ROK) has made significant advances in the fisheries sector in recent years. The country's harvest of fishery products in 1972 totaled 1,343,569 metric tons, surpassing the record 1971 catch of 1,073,733 tons by 25.1 percent, according to the Japan External Trade Organization's (JETRO) report based on data compiled by the ROK Office of Fisheries.

CATCH

South Korea harvested 1,343,569 metric tons of fishery products valued at 107,574 million won (approximately US$268.9 million, based on 400 won = US$1) in 1972. This is an increase of 25.1 percent in quantity and 22.2 percent in value over 1971. The high-seas fisheries produced 224,135 tons, coastal fisheries (including acquaculture and whaling) provided 1,118,276 tons and inland fisheries contributed 1,158 tons.

Fish accounted for 947,661 metric tons (70.6 percent), molluscs 231,475 tons (17.2 percent), seaweeds 128,829 tons (9.6 percent), crustaceans 23,424 tons (1.7 percent) and other marine products 12,180 tons (0.9 percent) of the total production.

PROCESSED FISH PRODUCTS

Korean production of processed seafoods amounted to 161,846 tons in 1972 (31.1 percent above the 1971 output). Raw material supplied to processors totaled 405,787 tons.

EXPORTS

Korea exported $152,560,000 worth of fishery products in 1972, a 32.7 percent increase over the 1971 export

value of $114,980,000. Fishery products represented 8.4 percent of the country's total export trade valued at $1,800 million. Tuna, the leading export, accounted for $68,030,000 (44.8 percent) and live and fresh fish netted $27,366,000 (17.8 percent) of the fishery exports. Japan received $72.54 million (47 percent) of the value of Korea's fishery exports, and the United States took $36,387,000 (23.9 percent) of the total. In the future, Korea plans to develop export markets in southeast Asia.

POPULATION AND THE FISHING FLEET

At the end of 1971, the Korean fisheries industry comprised 205,000 households and a population of 1,229,000 persons (including fish processors). The number of fishermen was 391,800. ROK fishing fleet at the end of 1971 totaled 68,269 vessels representing 392,649 gross tons. Powered vessels comprised 21 percent and nonpowered vessels 79 percent of the total fleet.

Source: *Suisan Tsushin*, January 18, 1974.

Japan Likes Roe of Mexican Sea Urchins

Fresh sea urchin roe is being air-freighted from Mexico to Japan by two Japanese firms. Taiyo Fisheries Company ships the product to Sapporo, Hokkaido and Sato Shoten (trading company) flies shipments to the Tokyo Central Wholesale Market via Los Angeles. Urchin roe from Mexico are favored because of their low prices, reported to be about one-third of that for the Japanese domestic product. The two firms, which operate processing plants in Mexico, began shipping urchin roe in 1973. Sato Shoten is reported to have concluded a long-term contract with the Mexican Government for the harvesting and processing of "Murasaki" urchin, which are present in abundance along the coast of Mexico.

Japanese wholesale prices for sea urchin roe at the Tokyo Central Wholesale Market were reported as shown below on the specified dates.

	Domestic Supply				Imports	
Date	Quantity	White, Large	Price per Tray[2] Red, Large	Red, Small	Quantity	Price per Tray[2]
	(*No. Trays*)[1]		(*US$*)		(*No. Trays*)	(*US$*)
Feb. 13	7,300	4.48-8.62	5.17-6.90	2.93	2,700	1.55-5.17
Feb. 22	4,500	2.76-5.52	3.45-5.17	2.76	4,500	1.38-3.10
Feb. 26	1,600	5.17-7.93	5.52-6.90	—	2,400	2.24-5.17
Mar. 8	6,000	5.17-6.21	4.83-6.21	2.41-3.45	1,200	2.07-4.14

[1] One tray is approximately 200 gm (0.44 lb) net weight. Wide price range is presumably due to the condition of roe on arrival at the market.
[2] Dollar prices represent conversions from yen quotations at the rate of 290 yen=US$1.

Source: *Minato Shimbun*.

Canada Names New Fisheries Research Board Members

Four new members, including two with background in oceanography and ocean technology, have been appointed to the Fisheries Research Board of Canada, reports Fisheries Minister Jack Davis. Inclusion of members associated with non-fisheries aspects of the marine sciences reflects a broadened advisory role undertaken by the Board, Mr. Davis said.

Since January 1973, fisheries research stations operated by the Board have been operated by the Fisheries and Marine Service, Environment Canada. The 18-member Fisheries Research Board, under Chairman, Dr. J. Robert Weir, now advises the Minister of Environment and Fisheries on research and development programs in both fisheries and marine sciences.

New appointees welcomed at a Board meeting in Ottawa earlier this month, are: Dr. J. E. Blanchard, 52, President of the Nova Scotia Research Foundation at Dartmouth, N.S. Dr. Blanchard was Assistant Director of the Institute of Oceanography, Dalhousie University. D. N. Kendall, 59, Chairman of Kenting Ltd., Toronto, and a Director of Hermes Electronics Limited, Halifax, N.S. Mr. Kendall was a member of the Science Council Committee on Marine Science and Technology, and in industry participant on the Canadian Committee on Oceanography, representing the Marine Applications Council. Dr. G. H. Geen, 40, Chairman of the Department of Biological Sciences, Simon Fraser University, B.C. Dr. Geen served as a scientist with the International Pacific Salmon Commission and is a former biology professor at Dalhousie University. I. H. Langlands, 57, Vice-President (Development), National Sea Products Limited, Halifax, N.S. Mr. Langlands is also a Director of the Fisheries Council of Canada. The new members will serve five-year terms of office.

Japan Fish Agencies Tell New Directors

The Japanese Overseas Fisheries Cooperative Agency (a government subsidized special corporation) on February 15, 1974 appointed Mr. Iwao Arakatsu as executive director of the organization. Mr. Arakatsu, former director of the Fisheries Agency, succeeded Mr. Iwao Fujita (president, Japan Fisheries Association) who had been temporarily serving as the executive director. The organization was formed in June 1973 primarily to provide financial assistance in connection with the promotion of overseas fishery cooperation with foreign countries. The corporation was originally proposed to be organized as a government agency and named International Fisheries Cooperative Agency. The government has granted 2,500 million yen (US$8.6 million, based on 290 yen=US$1) in subsidy for the organization's first year projects.

The Minister of Agriculture and Forestry of Japan on January 12,

1974 announced the appointment of Mr. Yoshihide Uchimura, 52, as the new director of the Fisheries Agency, replacing Mr. Iwao Arakatsu. The new director is a graduate of the University of Tokyo's Economics Department and entered the Ministry of Agriculture and Forestry in 1945. He was formerly chief of the Ministry's Economics Bureau and at one time had served with the Fisheries Agency as technical official of the Fisheries Administration Division.

Sources: *Suisan Tsushin* and *Suisan Keizai Shimbun*.

Scientist Believes Japan Skipjack Catch Near Maximum Limit

The skipjack tuna catch off the Japanese home islands and in the "southern area" (between the equator and lat.24°N in the western Pacific) have approached close to the maximum level of yield, according to Dr. Kohei Kasahara, Chief, Tuna Research Section, Tohoku Regional Fisheries Research Laboratory of the Fisheries Agency. In his paper, entitled "Skipjack Tuna Fishery and Resource," presented at the annual tuna conference held in Shimizu in early February, Dr. Kasahara stated that 180,000 metric tons would be the maximum catch limit in the areas presently fished in the coastal and southern waters, in view of the declining trend in the catch per unit of effort.

He indicated that the increase in landings does not necessarily reveal a stable growth and attributed the high catch to longer trip lengths and an increase in the number of days fished. He suggested a maximum fishing effort (number of fishing days) of 110,000 days (at present 90,000 days) a year for the fleet. Dr. Kasahara's predicted maximum catch of 180,000 tons was not necessarily intended to sound a warning on the state of the skipjack resource but suggests the need to reexamine future plans for the skipjack fishery.

Source: *Suisan Keizai Shimbun*.

Newfoundland To Host Fisheries Exposition

An international Fisheries Exposition is scheduled for St. John's, Newfoundland, Canada, on September 16-20, 1974. The exposition, which will host exhibitors from around the world involved in all aspects of the commercial fishing industry, is being held by the Province of Newfoundland, Canada, as part of the Province's observance of the 25th Anniversary of joining the Dominion of Canada.

The exposition is being broken down into several sections, one of which displays and demonstrates actual boat equipment, trawlers, factory ships, freezer ships, designs, etc. A second area is set aside for processing equipment of all types and a third area will house a display of equipment for the shipping and handling of processed fish products. Exhibitors from as far away as Japan, Sweden and Peru will take part, as will many Canadian and Newfoundland companies.

To promote the use of fish products, international chefs from Canada, Cuba, France, Germany, the United States, Switzerland, Japan and other countries will enter a competition for the preparation of fish dishes.

Shipbuilders will exhibit the designs of their latest models of trawlers and draggers, and demonstrations of the latest fish filleting, skinning and cleaning equipment, as well as practical demonstrations of newly developed fishing and processing methods from around the world are scheduled. For more information contact Fisheries Exposition, P.O. Box 4125, Harvey Road Post Office, St. John's, Newfoundland, Canada.

USSR-Norway Fishing Conflicts Reported

Conflicts between the Soviet Union and Norway over the herring and cod fisheries in the Norwegian and Barents Seas are being reported in the Norwegian press. The cod problem arose when the Soviet Union declined to sign a draft agreement with Great Britain and Norway which had been negotiated in December, 1973, and was to be ratified in early 1974. Since the 1974 cod fishing season began March 1, the Norwegians are concerned by this development, and fear that cod resources in Arctic waters off Norway's coast will be depleted unless strict conservation measures are taken immediately.

An agreement on herring fishing, already in force between Norway, Iceland, and the USSR, prohibits the catch of mature herring in the Barents Sea, Norwegian Sea, and waters in the vicinity of the Faroe Islands, except when connected with scientific research on the condition and migration patterns of the stocks. Norwegian fishermen have reported 6 Soviet medium trawlers catching and salting "large herring" in waters off the Lofoten Islands. These islands are located in the Norwegian Sea off Norway's northwest coast in an area closed to fishing for mature, spawning herring. The Soviets claim that they are only studying the herring fishery there, but the Norwegians believe that the amount of herring being taken exceeds that which would be necessary for research, and therefore have charged the Soviets with violation of the agreement, according to a report in *Aftenposten*.

The Soviet reluctance to sign the draft agreement on cod fishing has both puzzled and annoyed Norwegian fisheries officials. The tripartite herring agreement was concluded on February 25, 1972 and was to be renegotiated before December 31 of the same year. Presumably, the agreement was extended at that time, and thus would have to be renegotiated in December 1973, probably at the same meeting of Norwegian and Soviet fishery officials which negotiated the draft agreement on cod fishing.

The 1972 herring agreement stipulates that no "mature herring spawn-

ing in the spring" are to be harvested in certain Statistical Regions of the Barents Sea, Norwegian Sea, and waters in the vicinity of the Faroe Islands as designated by the International Council for the Exploration of the Sea. The full text of the 1972 agreement is available on request from the NMFS International Activities staff.

The Norwegian suspicion, that what the Soviets defend as research may in fact be a fishing operation, seems to be strengthened by Norwegian fishermen's observations of herring being salted on the Soviet trawlers. Soviet research vessels normally do not process large quantities of landed fish.

While it is true that many Soviet research vessels are medium side trawlers (the same type that the Norwegian fishermen reported off the Lofoten Islands), it is considered unlikely that 6 such vessels would have been conducting research in the same location. Normally, Soviet fishery research vessels are assigned large marine areas in which to conduct their research, and they usually operate singly.

Fishery Notes

Boats Before Wives for Pt. Judith Fishermen

Ask a Point Judith fisherman what's the worst thing that could happen to him and he will probably mention the loss of his boat before the loss of his wife.

At least that is what two University of Rhode Island social scientists found when they conducted a comparison study of a group of fishermen and a group of mill workers. The conclusions of Dr. Carl Gersuny, a sociologist, and Dr. John J. Poggie, Jr., an anthropologist, are reported in the most recent issue of *Maritimes*, quarterly magazine of the Graduate School of Oceanography at URI, Kingston.

"When we asked the fishermen and mill workers, 'What is the worst thing that could happen to you?' the most frequent response for both groups was the individual's own death or serious illness, while the second most frequent response was 'loss of boat' among fishermen and 'loss of wife' among mill workers." The social scientists said, however, that fishermen's wives need not be unduly alarmed by this because their loss was the third most frequent response of their husbands.

The research conducted by Dr. Gersuny and Dr. Poggie involves much more than pinning down fishermen's priorities. By understanding the subculture of fishermen, they say, it will become more feasible to design workable programs for dealing with social problems facing fishermen and fishing communities. Their research was supported by the URI Sea Grant Program, which is funded by the National Oceanic and Atmospheric Administration.

They have found that kinship plays a more important role in the occupational life of fishermen than in most land-bound occupations, including mill workers. "Family relations," they said, "help determine who fishes and with whom." The social scientists have reasoned that if access to commercial fishing is ever limited to prevent excessive exploitation of stocks, the role of kinship in fishing communities must be taken into consideration.

Fishermen may find a greater measure of happiness than people in other occupations, Dr. Gersuny and Dr. Poggie said. Fishermen are among the least alienated of workers—meaning they do not feel they are in the rat race of a meaningless job and do not have a sense of powerlessness over their conditions of work. The reason, Drs. Gersuny and Poggie say, is because of "their close ties to the finished product, their high level of control over work and product, and the fact that a fisherman has a far better chance of becoming a boat owner than has a textile worker of becoming a mill owner."

Publications

University of Rhode Island Publications

Socioeconomic research issues in the development of world fisheries is the subject of a 12-page technical report from the International Center for Marine Resource Development at the University of Rhode Island. Research issues dealing with commercial fisheries, artisan coastal and inland fisheries, and the interrelations of agriculture and fisheries are covered in the pamphlet, **"Socio-Economic Research Issues in Fisheries Development,"** based on a workshop involving university and governmental personnel held at URI in 1972.

The publication, listed as Marine Technical Report No. 13, notes that information on fishing and fishermen in the developing countries is scarce; what is available is often less reliable than data for other non-urban sectors. Some issues that now seem critical, the report states, are market development and modernization, a systems management approach to river and coastal lagoon development, and the integration of fisheries with agricultural enterprises.

"Fisheries development can help solve employment and income equity problems in many nations of the world, but not unless more attention is concentrated and more research is done on economic aspects of fisheries development," it states. Free copies are available from the Marine Advisory Service, University of Rhode Island, Narragansett Bay Campus, Narragansett, RI 02882.

Rhode Island's Ocean Sands, Marine Technical Report No. 10, published by the University of Rhode Island Sea Grant Program, predicts that an offshore sand and gravel mining industry may soon develop in Rhode Island waters and says the state should be ready to cope with it.

Rising demand for sand and gravel, decreasing land supply, and increasing exploitation of ocean deposits may soon stimulate offshore mining on the East Coast says the author, Malcolm J. Grant, a resource analyst at URI's Coastal Resources Center.

In a series of management recommendations, Grant states that mining in depths shallower than 80 feet should be prohibited unless it is proven that such an operation would not result in beach erosion. The author also recommends that firms be required to submit an environmental impact statement—perhaps a joint effort of all bidders—before the management council issues a mineral extraction lease. The aesthetic impact of mining operations should be considered as part of the impact statement, the URI researcher said.

Dredging in spawning and nursery grounds or in productive shellfish beds should be discouraged, notes Grant. Extensive research on the offshore commercial fishing industry must be completed before conflicts with marine mining can be effectively resolved, he adds. Dredging should not be allowed in areas where barges or the associated equipment would interfere with commercial or recreational navigation and the coastal council should regulate small scale land mining of beach material to prevent erosion.

The 51-page publication contains information on the possible economic and environmental impact on the state of offshore mining as well as legal considerations. Free copies may be obtained from the Marine Advisory Service, University of Rhode Island, Narragansett Bay Campus, Narragansett, RI 02882.

Commercial quantities of red crab have been found off the northeastern coast of the U.S. and a 21-page booklet, **The Red Crab,** prepared by the URI Marine Advisory Service (MAS), discusses how to handle, process and market them. The Technical Report Number 11 is free from MAS.

To obtain a copy write to University of Rhode Island, Narragansett, RI 02882.

The second volume of a two-volume study entitled, **"Coastal and Offshore Environmental Inventory: Cape Hatteras to Nantucket Shoals,"** has been published by the University of Rhode Island Marine Experiment Station.

The new 480-page volume surveys the state of knowledge in coastal vegetation, marine geology, offshore weather and climate, and coastal zone utilization. The first volume covered the areas of physical oceanography, chemical oceanography, phytoplankton, zooplankton, benthic fauna, fisheries, marine mammals and birds. Elaine Y. Pratt served as managing editor for both volumes.

In his introduction, Dr. Saul B. Saila, experiment station director, said that many cases of changes in environmental quality clearly emphasize the importance of monitoring efforts in addition to the gathering of baseline information, in order to properly assess the effects of specific man-made or natural phenomena. He added that "only the outcomes of effective research programs will permit the force of intelligent management to bear on man's inevitably increasing role in coastal areas and estuarine processes."

Copies of volume two, entitled complement volume, are available at $5 each from the URI Marine Advisory Service, University of Rhode Island, Narragansett Bay Campus, Narragansett, RI 02882. All orders must be prepaid by check payable to the University of Rhode Island. A limited number of copies of the first volume are still available at $10 each.

Recent NMFS Scientific Publications

NOAA Technical Report NMFS SSRF-674, Bowman, Edgar W. **"Lake Erie bottom trawl explorations, 1962-66,"** January 1974, iv + 21 p.

ABSTRACT

The Bureau of Commercial Fisheries (now the National Marine Fisheries Service) Exploratory Fishing and Gear Research Base, at Ann Arbor, Mich., surveyed the abundance, availability to the otter (bottom) trawl, and depth distribtuion of various Lake Erie fish stocks between April 1962 and October 1966. The four exploratory cruises, conducted aboard the research vessel *Kaho,* clearly demonstrated the effectiveness of the bottom trawl in producing commercial quantities of yellow perch, *Perca flavescens,* and rainbow smelt, *Osmerus mordax.* Freshwater drum, *Aplodinotus grunniens;* carp, *Cyprinus carpio;* channel catfish, *Ictalurus punctatus;* and white bass, *Roccus chrysops,* were all produced in commercial quantities at least once during the study and collectively accounted for 17.1% of the total landings.

Between the first exploratory cruise in 1962 and the last in 1966 the abundance of yellow perch decreased significantly, and that of alewife, *Alosa pseudoharengus,* increased dramatically.

NOAA Technical Report NMFS CIRC-387, Manning, Raymond B. **"Marine flora and fauna of the Northeastern United States. Crustacea: Stomatopoda,"** February 1974, iii + 6 p.

ABSTRACT

This manual includes an introduction on the general biology, an illustrated key, an annotated systematic list, a selected bibliography, and an index to the stomatopod Crustacea of the inner continental shelf of the Northeastern United States. Four species are treated.

The 16-page publication **"Fishermen's Simplified Recordkeeping Sheets,"** (NOAA Form 88-46) is now available from the U.S. Government Printing Office. The book is divided into parts I and II, which deal with trip accounts and vessel owner's accounts. The record sheets permit recording of the number of days at sea, number of days fished, amount of sales, fuel expenses and much more.

The book can be obtained for $0.65 from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Russian and Polish Volumes Are Translated

The following Russian books, published by John Wiley & Sons and Israel Program for Scientific Translations (IPST), were translated by IPST in 1973. They are available at the prices indicated from Halstead Press, a division of John Wiley & Sons, 605 Third Ave., New York, NY 10016, or Keter Publishing House, P.O. Box 7145, Jerusalem, Israel. When ordering, cite the books' accession numbers.

"Specific Production of Aquatic Invertebrates," by V. E. Zaika. The author defines production as the total amount of organic matter produced by a given system and specific production as the amount of production per unit time per unit of system biomass. Topics include alterations of the Bertallanfy equation, productivity calculations, infusoria productivity, diurnal specific productivity data on more than 100 species of invertebrates and their relation to factors such as animal weight, age structure of a population, and environment temperature. Mathematical models are proposed to predict probable limits of specific production variability under different conditions. IPST Cat. No. 22077, 154 pp., $16.00.

"Morphology and Ecology of Marine Mammals," edited by K.K. Chapskii and V.E. Sokolov. This is a collection of articles intended for zoologists, morphologists, physiologists, and bionocists. It covers selected research topics in the USSR on seals, dolphins, and porpoises. Subjects include thermoregulation in seals, the possibility of taste perception in dolphins, new data on the biochemistry of blood of Black Sea dolphins, methods of electrophysiological experiments (described in English for the first time), signalling behavior in dolphins, and a Soviet perspective on oceanariums in the United States and Japan. IPST Cat. No. 22056, 232 pp., $20.00

"Schooling in the Ecology of Fish," by D. V. Radakov. Describes the structure and function of schooling of fish from an ecological perspective. Topics include empirical investigations, different theoretical views of schooling behavior, materials and methods of observations, characteristics and importance of schooling, and practical application of research findings. Both original and published data are analyzed. The book is intended for a broad audience of biologists, students, and workers in the fishing industry. It contains an extensive, current, international bibliography. IPST Cat. No. 22076, 173 pp., $16.00.

"Chemical Kinetics," by H. M. Emanuel' and D. G. Knorre. Intended to be a textbook. Contains the technical principles of the kinetics of homogeneous chemical reactions, with numerous examples. This is a revision of an earlier edition and contains new material on principles of electron paramagnetic resonance (EPR). IPST Cat. No. 22061, 447 pp., $24.00.

The translation and printing of selected articles from the Polish journal *Technika i Gospodarka Morska* (Marine Technology and Management) are being done in Poland for the National Science Foundation under the Special Foreign Service Science Information Program (financed with Public Law 480 Funds). The translations are sold for $3.00 each by the National Technical Information Service (NTIS), Springfield, VA 22151. Selections from one or two issues are included under one cover and the latest ones to be published are from Vol. 20, 1970: Nos. 8-9 as TT 70-55125/8,9, Nos. 10-11 as TT 70-55125/10,11 and No. 12 as TT 70-55125/12.

When ordering, cite the translations' accession numbers. Articles on fisheries in those issues include: Polish herring fisheries in the North Sea and the Celtic Shelf area; economic principles of selecting fishing grounds; capacity of Polish cutter ports; human infection by marine fish parasites; reaction of fish to underwater explosions; protection of catch by means of ionizing radiation; maritime economy in Poland; problems of economic cooperation among Baltic countries; water temperature measurements; stowage and marine transport of fishmeal; Northeast Atlantic (Greenland) halibut; consumption of fish products in Gdansk Voivodship in 1950-1969; evaluation of efficiency of B-29 trawler fish processing equipment; development of cephalopod fisheries; marine fisheries of North Vietnam; mechanism of profits and indices of profitability of deep-sea fisheries; liquid nitrogen for freezing on vessels; and Cuba's marine fisheries.

A limited number of free copies is available from the Translation Program, International Activities Staff, Fx41, NMFS, NOAA, U.S. Department of Commerce, Washington, DC 20235.

Virginian Sea Chart

"Bathymetry of the Virginian Sea," a detailed multicolored map of the depths of the sea floor of the Chesapeake Bight extending from Cape Henlopen to Cape Hatteras, is available from the Virginia Institute of Marine Science. The sea floor bathymetry is based on approximately 100,000 depths from 66 original hydrographic sounding sheets and other data, contoured at 12-ft intervals out to 496 ft and 100-ft intervals out to 1,000 ft. The map, which covers an area of over 20,000 sq mi, resulted from the most detailed compilation of depth information yet attempted for the Virginia continental shelf.

The data was compiled in conjunction with a study of ocean wave refraction for Virginia's continental shelf and coastline. Dr. Victor Goldsmith is principal investigator for the research, supported by a Sea Grant project administered by the National Oceanic and Atmospheric Administration (NOAA). The map, published as SRAMSOE No. 39, is available for $3 from the Virginia Institute of Marine Science Library, Gloucester Point, VA 23062.

Some ABC's of Editing

• The appearance of "Some ABC's of Fo'c'sle Living" in this month's number of *Marine Fisheries Review* is the outcome of cooperation among several institutions and individuals.

Co-author A. K. Larssen was commissioned by the University of Alaska's Marine Advisory Program to write the manuscript with the editorship of Sig Jaeger, then with the Sea Grant Advisory Program at the University of Washington, Seattle. Thanks are due John P. Doyle, Head, Marine Advisory Program, and Assistant Professor, Fisheries Extension, University of Alaska, Fairbanks; Robert E. Harris, Manager, Marine Advisory Programs, Division of Marine Resources, University of Washington; and Patricia Peyton, Editor, Washington Sea Grant Program, University of Washington, for their assistance with the manuscript.

The Washington Sea Grant Program, the Pacific Halibut Commission, Seattle, and the authors provided photographic assistance for illustrative purposes.

• In our own shop, Willis L. Hobart, Managing Editor of *Marine Fisheries Review*, and Harold L. Spiess, Visual Information Specialist, prepared the manuscript for publication.

• I first read "Some ABC's of Fo'c'sle Living" about 18 months ago and could hardly restrain my editorial greed. A lifetime of reading has led me to the conclusion that about the only universal hallmark of an interesting manuscript is that it is a manuscript written by an interesting man, or men. Subject matter and skill of treatment (although they are both plus factors) seem not to be of overriding importance. It was obvious from the manuscript that A. K. and Sig were interesting men, writing with candor and good humor about a way of life active, hard, and, they found, rewarding.

• A. K. Larssen has had wide experience in commercial fishing with various types of gear. From 1920 to 1935 he fished his native Norwegian waters for cod, haddock, saithe, and herring. From 1938 to 1964 he fished the western U.S. coast for halibut, salmon, albacore, soupfin shark, rockfishes, and sablefish. His gear experience includes longlines, handlines, gill nets (drift/bottom), purse seine, otter trawl, and jig lines. He has also participated in salmon tagging on the high seas with the Fisheries Research Institute, Seattle, Washington, and acted as supervisor of fishing operation on the R/V *Anton Bruun* in the Bay of Bengal and off the coast of South America for the National Science Foundation. On board the R/V *Hero*, he served in the same capacity off the South Shetland Islands and the Antarctic Peninsula. Now retired, he was a Fishery Methods and Equipment Specialist with the U.S. Bureau of Commercial Fisheries (now the National Marine Fisheries Service) from April 1965 to June 1971. He is currently associate editor, *The Fishermen's News*, Seattle, and a contributor to *Fiskaren*, Bergen, Norway, *ME'A*, Trondheim, Norway, and *Western Viking*, Seattle.

Larssen

• Sig Jaeger was also born in Norway, but was raised and educated in the United States, receiving his B.A. from the University of Washington in English. He completed two years of graduate work, in 1952, in comparative literature and creative writing. He was a fisherman from 1947 through 1956, a fishing vessel owner and operator, 1957 through 1971. He has used sardine purse seine gear, longline gear for halibut and black cod, trolling gear for albacore, dredging gear for scallops, and engaged in longline potfishing gear for black cod in cooperation with the National Marine Fisheries Service. Presently, he is serving as a consultant to the University of Alaska's and University of Washington's Marine Advisory Programs. He is the author of several papers on fishing methods.

Jaeger

• "Some ABC's of Fo'c'sle Living" first came to my attention in my capacity as a member of the PASGAP Publications (now Communications) Committee. PASGAP (Pacific Sea Grant Advisory Program) is a coalition of the University of Alaska, University of California, University of Southern California, University of Hawaii, Oregon State University, Humboldt State College, and the University of Washington, all of which are involved in Sea Grant projects and programs, and he University of British Columbia and the National Marine Fisheries Service. Under PASGAP these institutions share their talents and ideas in attacking marine advisory problems in the Pacific area. The advantages of such sharing, in more effective programs and in the saving of money, are self-evident.

• Like A. K. and Sig, I have spent most of my life at a specialized trade. On balance, I have found it as rewarding as it is frustrating, probably more the former than the latter. Some aspects of it, particularly the technology, have changed almost beyond belief, and a good deal of what I labored over so in college is now about as relevant as knowing how best to build a pyramid. But the essentials are unchanged. They might be expressed as: Keep awake, know what you're doing, keep your nose clean. Those seem to be the precepts A. K. and Sig stress in their delightful manuscript: they are probably applicable to every craft. For all the unfamiliarity of its subject matter, "Some ABC's of Fo'c'sle Living" would tell the fledgling journalist a good deal of what he needs to know to get by in his trade. T.A.M.

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